2

Affected Environment/ Environmental Consequences

In the Airside Improvements Planning Project (Airside Project) Draft Environmental Impact Statement/Environmental Impact Report (Draft EIS/EIR), Chapter 5 presented the baseline environmental conditions for Logan Airport and surrounding communities. In Chapter 5 of the Supplemental Draft Environmental Impact Statement/Final Environmental Impact Report (Supplemental DEIS/FEIR), this analysis of baseline conditions was expanded. The environmental consequences of the Preferred Alternative were also described in detail in Chapter 6 of both the Draft EIS/EIR and the Supplemental DEIS/FEIR.

This chapter of this Final EIS briefly describes the environment affected by the Airside Project, and provides an updated summary of the environmental consequences of the Preferred Alternative. Available information from the *Logan Airport 1999 Environmental Status and Planning Report*[1] (*1999 ESPR*) on noise and air quality conditions for 1999 is presented in this chapter. The short- and long-term cumulative impacts associated with the Airside Project, are also summarized. Chapter 5 and 6 of the Draft EIS/EIR and the Supplemental DEIS/FEIR provide a more detailed description of the environment affected by the Airside Project, the environmental consequences of the Airside Project, and the selection of the Preferred Alternative; these chapters should be reviewed in conjunction with this Final EIS. References to appropriate sections of the Draft EIS/EIR and/or the Supplemental DEIS/FEIR are provided throughout the discussion. Throughout this Chapter, the discussion focuses on the environmental impacts of the Preferred Alternative. The environmental consequences associated with a wind restriction on Runway 14/32 are presented in Section 3.8 of this Final EIS, while the environmental implications of deferring a decision on the Centerfield Taxiway are presented in Section 3.10.

2.1 Affected Environment (Existing Conditions)

The following are key environmental categories assessed in connection with the EIS review of the Airside Project: noise; air quality/odors; drainage and water quality; soils; habitat; endangered and threatened species; coastal zone management consistency; parklands and historic resources. The sections that follow explain the inter-relationship of

1 *Logan Airport 1999 Environmental Status and Planning Report,* prepared for Massport by Vanasse Hangen Brustlin, Inc., December 2000.

existing Logan Airport operations with the surrounding environment, and also describe the anticipated affects of the Preferred Alternative on the environment.

2.1.1 Noise/Land Use

In-flight Noise

The analysis in Section 5.2 of the Supplemental DEIS/FEIR indicates that in 1998 certain sections of Winthrop and East Boston were the areas most affected by noise exposure from Logan operations. Significant numbers of residents in sections of Winthrop and East Boston experienced noise greater than 70 decibel (dB) Day-Night Sound Level (DNL), and some were exposed to levels above 75 dB DNL. Sections of South Boston and Revere were generally the next most affected communities. In 1999, Winthrop showed a decrease in the number of residents exposed to the highest noise levels of 75 dB DNL and above, while noise exposure in South Boston also decreased slightly. However, noise exposure in Chelsea, Revere and parts of East Boston increased slightly. Table 2.1-1 presents the noise-exposed populations by community for 1998 and 1999. Figure 2.1-1 presents a graphical representation of the 60, 65, 70 and 75 dB DNL contours generated by the Integrated Noise Model (INM) for 1999.

Exposures at these highest noise levels support the continuing need to improve achievement of the Preferential Runway Advisory System (PRAS) goals that attempt to reduce exposure in the most highly exposed areas without significantly increasing the exposure above 65 dB DNL in other areas.

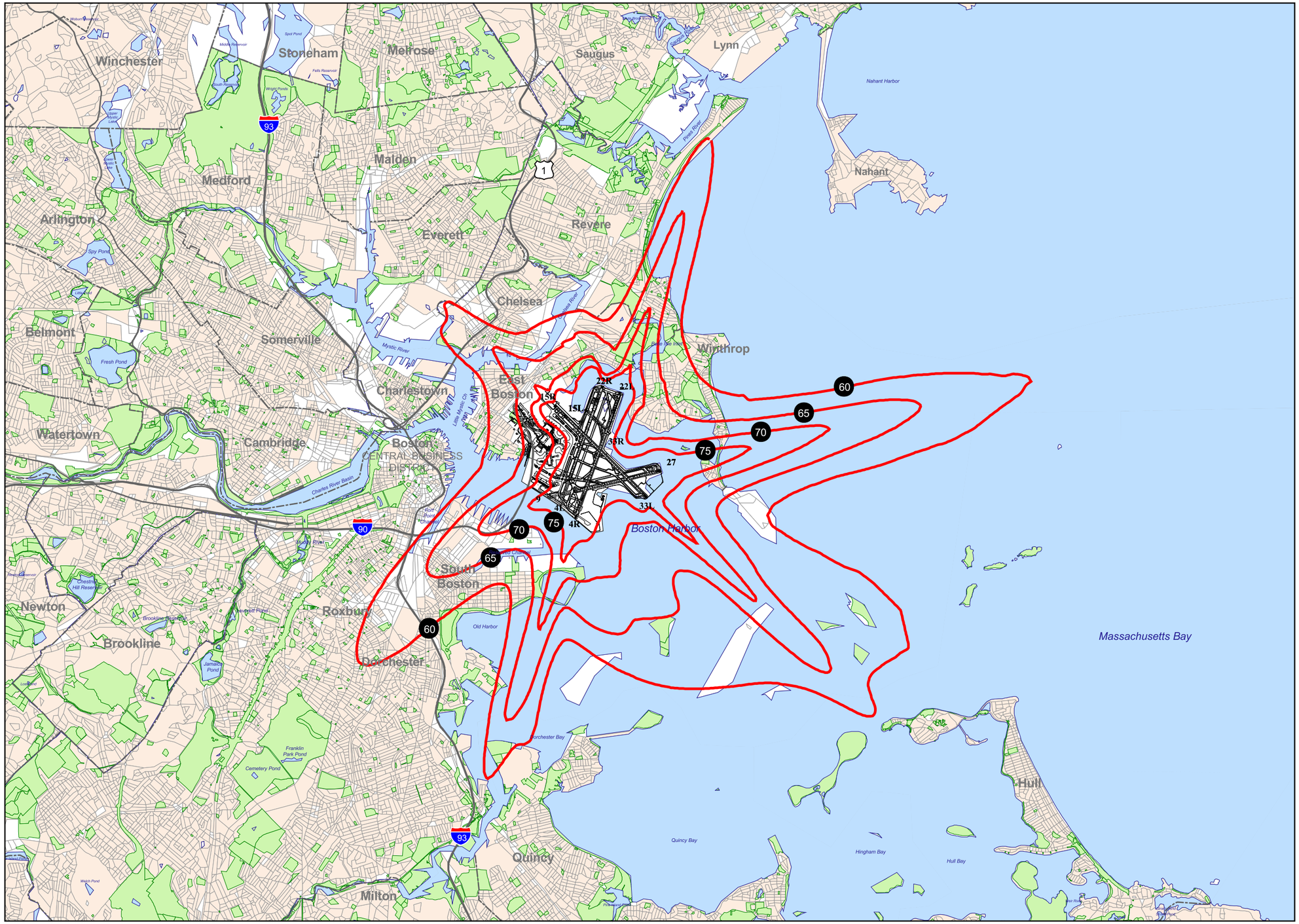
Ground Noise

With regard to ground noise from aircraft operations, taxiway noise is not analyzed in the *1999 ESPR* or earlier versions of these reports. However, the Airside Project analyses in Section 6.2.4 of the Draft EIS/EIR showed that noise exposure from aircraft taxiing operations is significantly less than that for in-flight operations.

2.1.2 Air Quality/Odors

Although the Boston metropolitan area has experienced past violations that caused the area to be designated nonattainment for ozone, measured air quality at Logan is within national and state ambient air quality standards.

As reported in the *1999 ESPR*, ground service equipment (GSE) constituted the largest source of carbon monoxide (CO) emissions, representing over 44 percent of total emissions at Logan in 1999. Massport and several major air carriers at Logan are undertaking programs to convert GSE to alternative fuels where feasible. Aircraft, which accounted for 34 percent of airport emissions, were the next largest source of emissions at Logan. Airport-related motor vehicles were the third largest source, and other sources had a nearly negligible contribution.



Legend

60, 65, 70 and 75 DNL

Open Space

Census Blocks

Populated

Non-Populated

N

0 0.5 1 1.5 Miles

massport

Figure 2.1-1

1999 DNL Noise Contours

Source: Harris Miller Miller & Hanson

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Table 2.1-1
Noise-Exposed Population by Community - 1998 and 1999

Community	DNL Level	1998[1]	1999[1]
Chelsea	75 dB and above	0	0
	70 dB and above	0	0
	65 dB and above[3]	0	95
	60 dB and above	9,222	9,344
East Boston[2]	75 dB and above	58	58
	70 dB and above	590	422
	65 dB and above[3]	7,962	9,015
	60 dB and above	30,396	30,998
Long Island	75 dB and above	0	0
	70 dB and above	0	0
	65 dB and above[3]	0	0
	60 dB and above	502	502
Revere	75 dB and above	0	0
	70 dB and above	0	128
	65 dB and above[3]	3,168	3,293
	60 dB and above	5,300	5,340
South Boston	75 dB and above	0	0
	70 dB and above	48	0
	65 dB and above[3]	3,553	3,039
	60 dB and above	22,511	21,507
Boston (Other)[4]	75 dB and above	0	0
	70 dB and above	0	0
	65 dB and above[3]	0	0
	60 dB and above	10,809	6,720
Winthrop	75 dB and above	519	353
	70 dB and above	2,041	1,761
	65 dB and above[3]	8,613	7,707
	60 dB and above	15,120	14,842
Total All Communities	75 dB and above	577	411
	70 dB and above	2,679	2,311
	65 dB and above[3]	23,296	23,149
	60 dB and above	93,860	89,253

Source: *Logan Airport 1999 ESPR* and Massport.
1 Population counts from the 1998 Annual Update and the 1999 ESPR are based on 1990 Census population data.
2 East Boston population count for 1999 includes 1,223 people added to the 65 dB DNL contour reflecting the effect of an FAA-approved terrain adjustment in Orient Heights.
3 65 DNL is the federally defined noise criterion used as a guideline to identify residential land use incompatibility.
4 Other Boston includes Back Bay, Dorchester, Jamaica Plain, Roxbury and the South End.

In 1999, aircraft emitted the largest portion (85 percent) of oxides of nitrogen (NOx). GSE were responsible for about 5 percent, while motor vehicles and other sources each emitted almost 10 percent of the total. (See Table 2.1-2)

In 1999, VOCs emitted by aircraft accounted for approximately 42 percent of total VOC emissions, followed by other sources, mainly fuel storage/handling (25 percent) and motor vehicles (24 percent). GSE, at about 9 percent, accounted for the remaining VOC emissions.

Table 2.1-2
Estimated Emissions (in kg/day) at Logan Airport

	VOC		NOx		CO	
Source Categories	**1998**	**1999**	**1998**	**1999**	**1998**	**1999**
Aircraft Sources						
Passenger jet aircraft	736	510	4,471	4,699	3,079	3,045
Commuter aircraft	154	113	203	139	482	468
Cargo aircraft	43	42	254	277	218	227
General aviation	13	50	5	27	269	368
Total aircraft sources	**946**	**714**	**4,933**	**5,142**	**4,048**	**4,108**
Ground Service Equipment[1]	**145**	**151**	**317**	**329**	**5,113**	**5,358**
Motor Vehicles						
Ted Williams Tunnel through-traffic	NA	15	NA	22	NA	105
Parking/curbside	118	124	37	38	772	806
On-airport vehicles (landside)	258[2]	260	372[1]	369[4]	1,883	1,834
Total motor vehicle sources	**376**	**399[2]**	**409**	**429[2]**	**2,655**	**2,745[2]**
Other Sources						
Fuel storage/handling	372	418	0	0	0	0
Miscellaneous sources[3]	2	2	284	174	37	22
Total other sources	**374**	**420**	**284**	**174**	**37**	**22**
Total Airport Sources	**1,841**	**1,684**	**5,943**	**6,074**	**11,853**	**12,233**

Source: Logan Airport 1999 ESPR
1 Includes vehicles and equipment converted to alternative fuels.
2 Includes through traffic from Ted Williams Tunnel not destined for Logan Airport. Data not reported separately for 1998.
3 Includes the Central Heating/Cooling Plant, emergency electricity generation, and other stationary sources.
4 Includes reductions attributable to CNG shuttle buses, as calculated by the West Virginia University Transportable Emission Testing Laboratories in March 1999.
Note: 1 kg/day is approximately equivalent to 0.402 tons per year
NA Not Available

2.1.3 Drainage and Water Quality

As described in Section 5.6 of the Supplemental DEIS/FEIR, the Preferred Alternative would be constructed in an area served by existing stormwater collection and treatment systems. Existing airfield stormwater runoff was found to be generally uncontaminated.

2.1.4 Soils

The Airside Project Draft EIS/EIR identified a potential need to remove up to approximately 240,000 cubic yards of soil material stockpiled on Governors Island for construction of the proposed unidirectional Runway 14/32, a component of the Preferred Alternative. Since circulation of the Draft EIS/EIR, the Governors Island soil stockpile has been moved to the Rubchinuk landfill in Middleton, MA, in response to a request from the court-appointed receiver for the landfill closure. As a result, there are no stockpiled soils that would need to be removed for construction of unidirectional Runway 14/32.

Other soil materials, which may need to be excavated for taxiway and runway construction, can be handled with conventional soil management procedures. Soil and sediment characterization is described in more detail in Section 5.7 of the Supplemental DEIS/FEIR.

2.1.5 Habitat

The Preferred Alternative would be located in upland areas of the airfield that are generally vegetated by common grassland species. These species are groomed in order to maintain airfield safety.

2.1.6 Endangered and Threatened Species

Section 5.5.3 of the Supplemental DEIS/FEIR indicated that there are no federal-listed endangered or threatened plant or animal species known to occur at Logan. The Upland Sandpiper, a state-listed endangered species, has been observed on portions of the airfield to be used for the Preferred Alternative.

2.1.7 Coastal Zone Management Consistency

Logan is surrounded on three sides by Boston Harbor. This location is within an area designated by the Commonwealth as the Coastal Zone. In accordance with state and federal regulations, construction projects within the Coastal Zone must be consistent with the policies and principles established for these areas by the Massachusetts Office of Coastal Zone Management (CZM). This analysis is summarized in Section 2.2.7 of this Final EIS. Appendix E contains correspondence from the Massachusetts Office of Coastal Zone Management regarding their view of the consistency determination, stating their belief that the Preferred Alternative is consistent with the Massachusetts coastal zone management program to the maximum extent practicable.

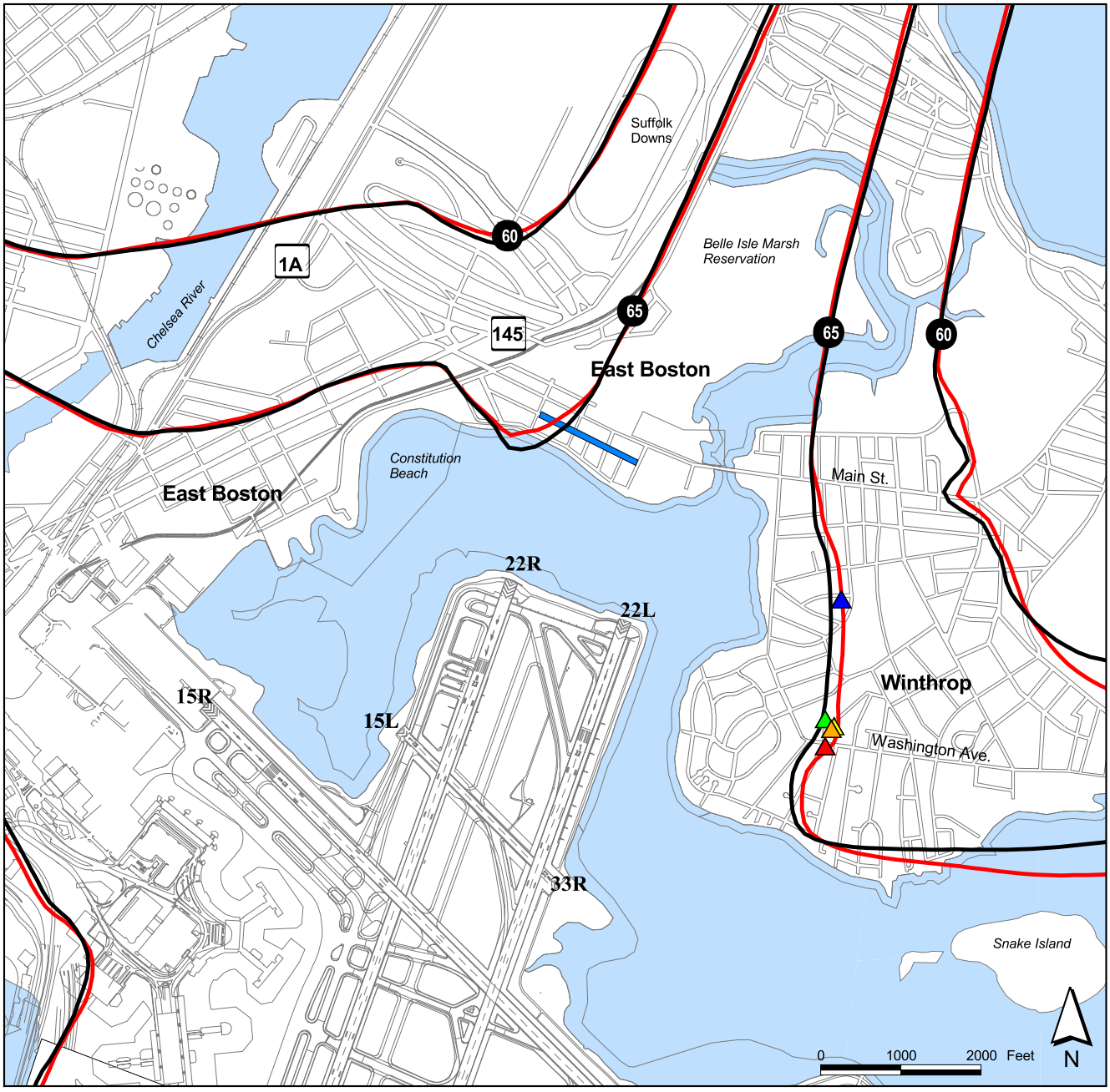
2.1.8 Parklands and Historical Resources

Historic properties that fall within the area between the No Action and the Preferred Alternative contours for the 29M Low fleet are depicted in Figures 2.1-2 to 2.1-4. Sections 2.2.8 and 2.2.9 of this Final EIS summarize the analysis of the Preferred Alternative's impact on these resources. Figure 2.1-5, reprinted from the Supplemental DEIS/FEIR, shows the existing parkland resources in the study area.

2.1.9 Other Environmental Categories

Physical improvements comprising the Preferred Alternative are located on an existing airfield and would not alter existing land use patterns. The FAA's *Airport Environmental Handbook* (FAA Order 5050.4A) requires a range of issues to be addressed in terms of potential environmental consequences other than those already described. The Preferred Alternative would not affect the following impact categories:

- Wetlands
- Coastal Barriers
- Floodplains
- Wild and Scenic Rivers
- Farmland
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste
- Design and Architecture



Legend

No Action Alternative 29M Low (60 and 65 dB DNL)

Preferred Alternative 29M Low (60 and 65 dB DNL)

Cultural Resource Area

St. Andrews Road

Cultural Resources

240 Somerset Avenue

45 Enfield Road

75 & 77 Somerset Avenue

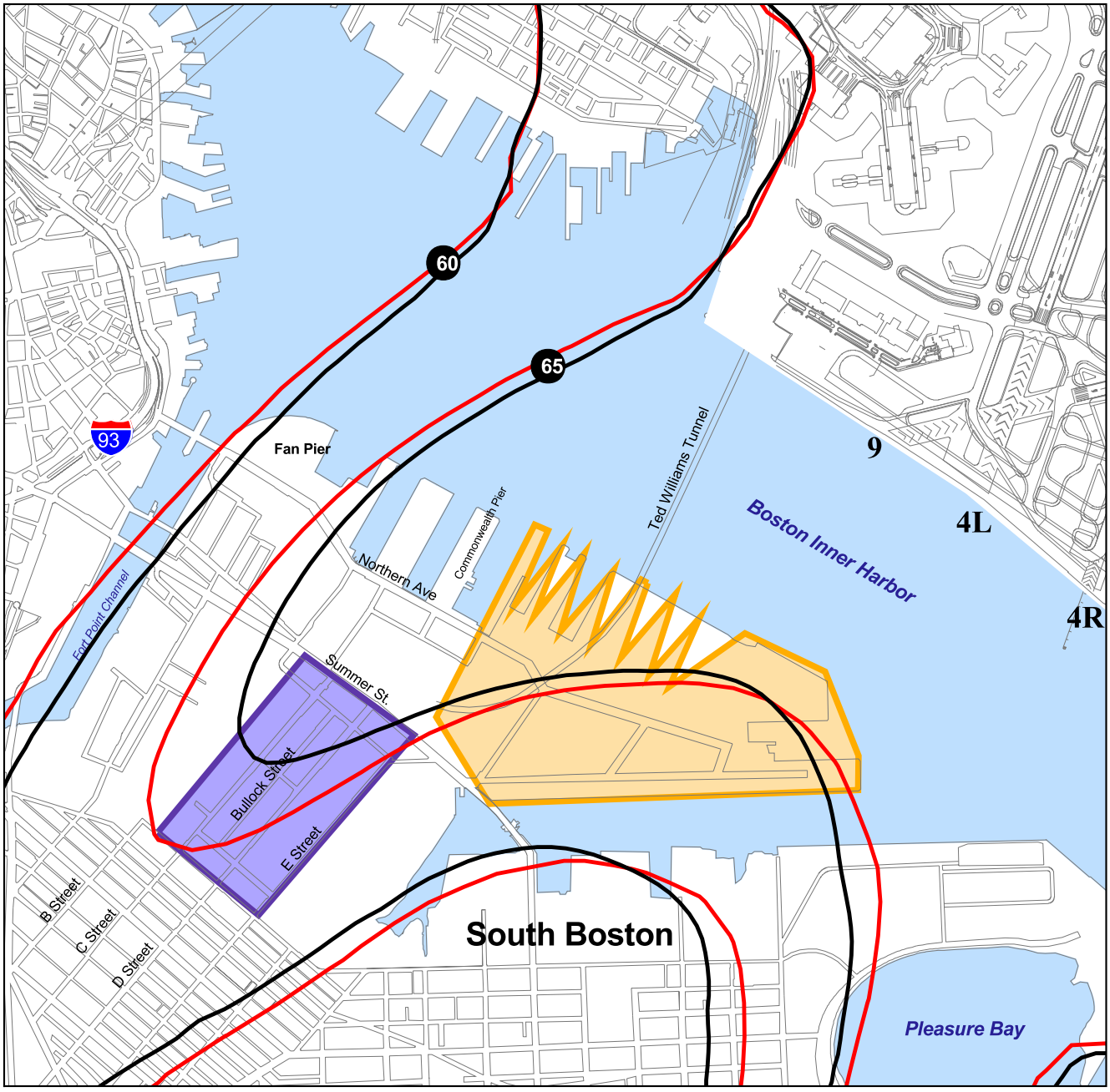
88 Somerset Avenue

94 Somerset Avenue

Source: Harris Miller Miller & Hanson

Figure 2.1-2

Cultural Resources - East Boston, Winthrop



Legend

No Action Alternative 29M Low (60 and 65 dB DNL)

Preferred Alternative 29M Low (60 and 65 dB DNL)

Cultural Resources - South Boston

Boston Army Supply Base

C Street Area

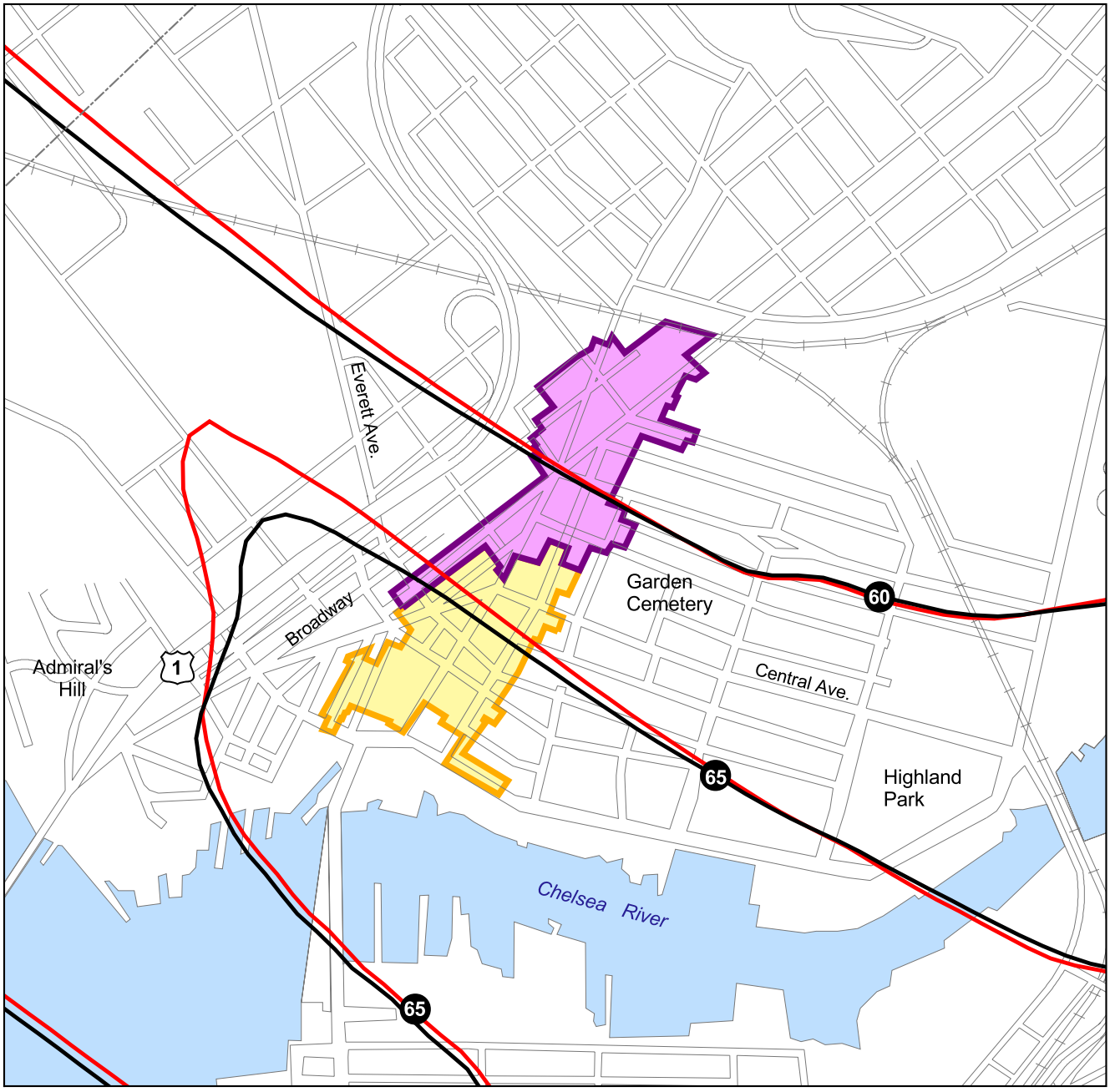
N

0 900 1800 Feet

Source: Harris Miller Miller & Hanson

Figure 2.1-3

Cultural Resources - South Boston



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No Action Alternative 29M Low (60 and 65 dB DNL)

Preferred Alternative 29M Low (60 and 65 dB DNL)

Cultural Resources - Chelsea

Bellingham Square Historic District

Downtown Chelsea Residential District

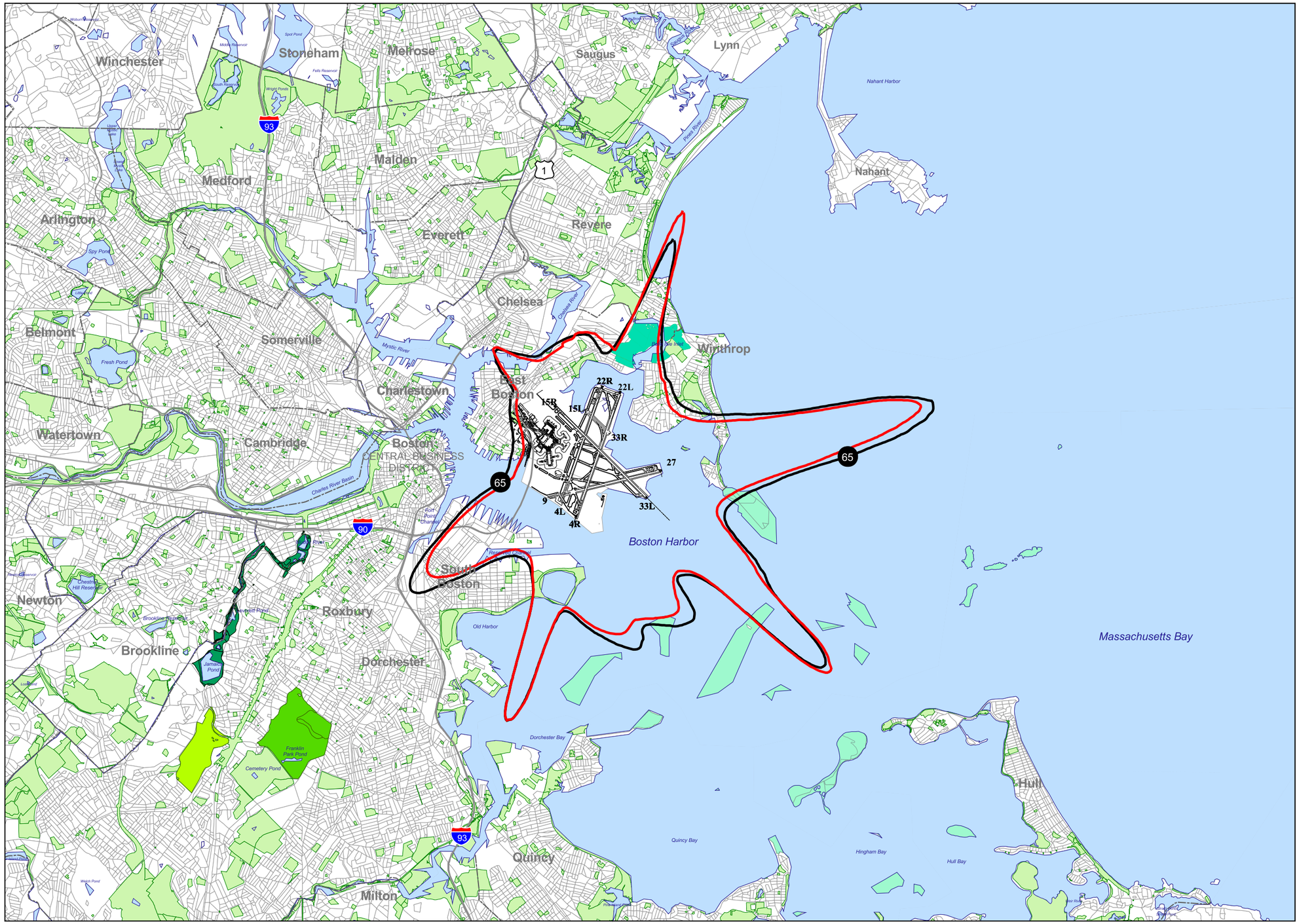
N

0 500 1000 Feet

Source: Harris Miller Miller & Hanson

Figure 2.1-4

Cultural Resources - Chelsea



Legend

- 1998 65 DNL
- 1999 65 DNL

Parklands

- Arnold Arboretum
- Belle Isle Marsh Reservation
- Boston Harbor Islands
- Franklin Park
- Olmsted Park / Emerald Necklace
- Recreational and Protected Open Space
- Census Block Boundaries

N

0 0.5 1 1.5 Miles

massport

Figure 2.1-5

Parklands and 1998 and 1999 65 dB DNL Contour

Source: Harris Miller Miller & Hanson 1999 ESPR

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2.2 Environmental Consequences

This section summarizes the analyses presented in the Airside Project Draft EIR/EIS and the Supplemental DEIS/FEIR. This summary focuses primarily on the comparison between the Preferred Alternative and the No Action Alternative for fleets that bracket the range of potential impacts: the 29M Low Fleet and the 37.5M High Fleet scenarios. These fleets were chosen because they reflect the full range of environmental consequences and include the worst case for noise exposure.

Recent trends at Logan indicate an increased presence of regional jet aircraft in the fleet mix. In order to examine the potential impacts that these 30 to70 seat jet aircraft may have on the operational and environmental analysis of the Preferred Alternative, an additional fleet forecast for the long-term 37.5 million annual air passenger scenario was developed for the Supplemental DEIS/FEIR. This fleet scenario, referred to as the 37.5M High RJ Fleet, reflects a significantly higher percentage of regional jet aircraft and a lower percentage of non-jet operations than any of the prior fleet forecasts presented in the Airside Project Draft EIS/EIR. The environmental consequences of the Preferred Alternative under the 37.5M High RJ fleet are bounded by the 29M Low and 37.5M High fleet scenarios and are fully described in Sections 6.2 and 6.4 of the Supplemental DEIS/FEIR.

Areas of environmental impact were identified through the use Geographic Information System (GIS) mapping on a detailed base map. The Supplemental DEIS/FEIR evaluates environmental impacts based on the 1990 census data, which was the most recent U.S. Census data available at the time the analysis was conducted. Since then, Census 2000 population counts have been released. Updated findings showing this 2000 information are provided in Section 3.6 of this Final EIS, and are also summarized in this section.

Throughout this Chapter, environmental impacts relate to the unrestricted Preferred Alternative. The environmental consequences associated with a wind restriction on Runway 14/32 are presented in Section 3.8 of this Final EIS, while the environmental implications of deferring a decision on the Centerfield Taxiway are presented in Section 3.10.

2.2.1 Noise/Land Use

In-flight Noise

The analysis set out in Section 6.2 of both the Draft EIS/EIR and the Supplemental DEIS/FEIR indicates the Preferred Alternative would provide the opportunity to reduce noise exposure in the most highly affected communities around Logan, which include parts of Winthrop, East Boston, and Revere. Depending on the fleet forecast, all three communities have residents exposed to DNL values of 70 dB or greater. Based on the Census 2000 data and the 29M Low Fleet scenario, use of unidirectional Runway 14/32 would reduce the number of people within the 75 dB DNL by approximately 120 people in Winthrop. Similarly, the number of people in the 70 dB DNL contour would be reduced by approximately 231 people in parts of East Boston and Winthrop. Under the 37.5M High forecast, 187 people from Winthrop residing in areas of above 75 dB DNL and 2,765 people from Revere, East Boston and Winthrop residing in areas of 70 dB DNL and above

would no longer be exposed to those high noise levels. Figures 2.2-1 and 2.2-2 compare DNL contour values of 60, 65, and 70 dB under the 29M Low and the 37.5M High fleet assumptions. Table 2.2-1 provides a summary of the number of people residing within various 5 dB increments of noise exposure for the 29M Low Fleet and 37.5 High Fleet scenarios under the No Action and Preferred Alternatives, compares 1990 and 2000 census population counts, and updates historic conditions to 1999. Refer to this Final EIS, Section 3.6, Tables 3.6-2 and 3.6-3 for population counts by community. Population counts and noise contours for the Preferred Alternative with a wind restriction are included in Section 3.8.

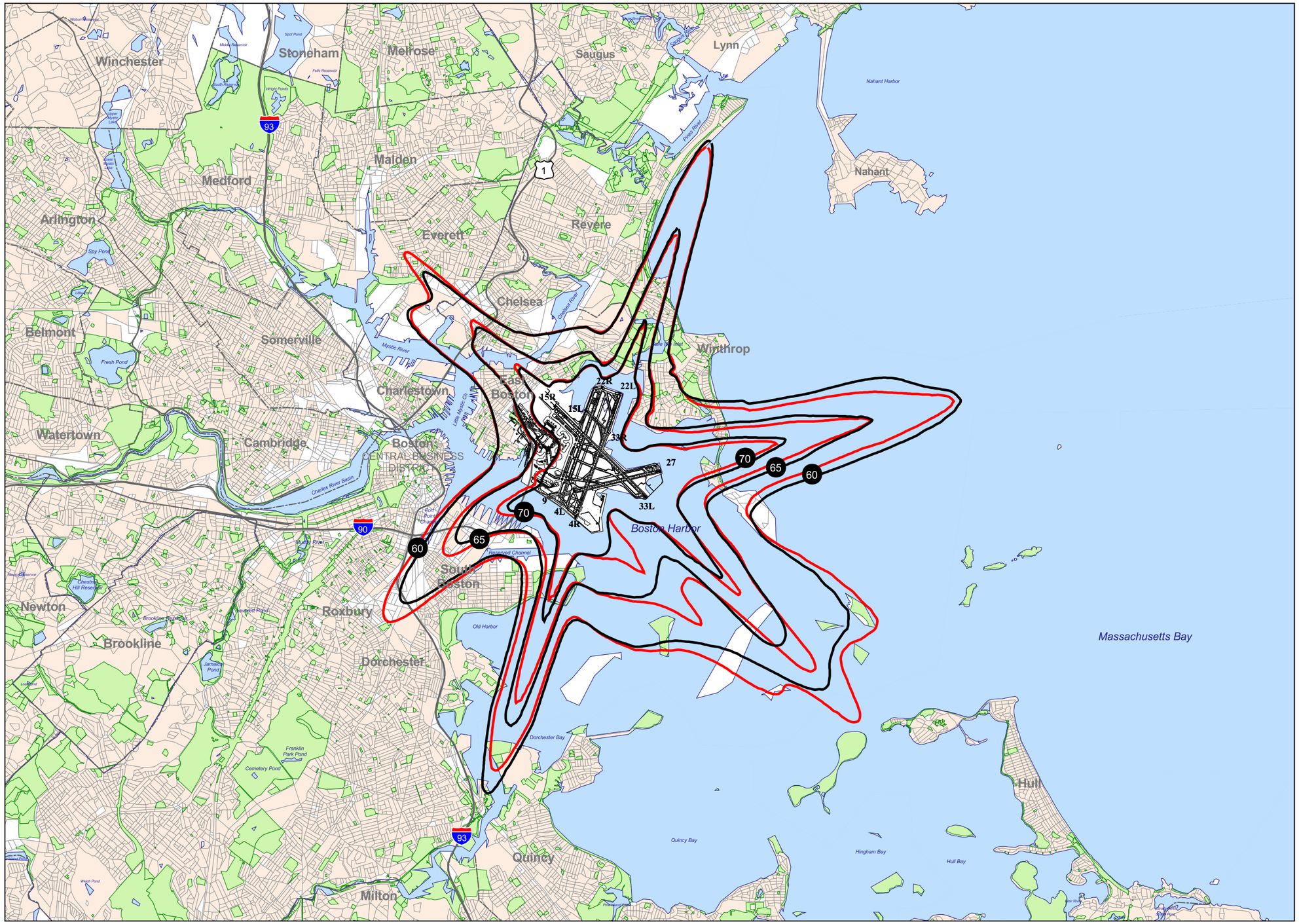
Table 2.2-1
Summary of Noise-Exposed Population

Day-Night Sound Level in dB[1]	1998 Historic[3]	1999 Historic[3]	No Action Alternative		Preferred Alternative		Preferred Alt. Compared to No Action		Percent Change *re* No Action	
			1990 Census	2000 Census	1990 Census	2000 Census	1990 Census	2000 Census	1990 Census	2000 Census
29M Low Fleet[2]										
DNL 75 dB and above	577	411	257	122	77	2	-180	-120	-70%	-98%
DNL 70 dB and above	2,679	2,311	1,521	1,612	1,459	1,381	-62	-231	-4%	-124%
DNL 65 dB and above	23,296	23,149	17,531	18,960	17,909	18,562	378	-398	2%	-2%
DNL 60 dB and above	93,860	89,253	59,523	68,171	60,418	71,080	895	2,909	2%	4%
37.5M High Fleet[2]										
DNL 75 dB and above	577	411	257	187	58	0	-199	-187	-77%	-100%
DNL 70 dB and above	2,679	2,311	3,828	3,733	1,028	968	-2,800	-2,765	-73%	-74%
DNL 65 dB and above	23,296	23,149	11,499	12,423	12,007	12,676	508	253	4%	2%
DNL 60 dB and above	93,860	88,602	41,659	47,615	52,153	59,737	10,494	12,122	25%	25%

1 Except for 1998 and 1999, all estimates are based on runway use chosen to most nearly achieve PRAS goals and reflect the effects of delayed aircraft as determined by the DELAYSIM model.
2 References to 29M Low Fleet and 37.5M High Fleet scenarios do not apply to 1998 and 1999; they are applicable only to the Preferred and No Action Alternatives.
3 Population counts for 1998 and 1999 are based on 1990 Census data.

The reduction in exposure at the highest DNL values is achieved by redistributing aircraft onto other runways and by increasing the number of over-water operations. Depending on the fleet, this redistribution may cause increases in exposure at lower DNL values. For example, under the 29M Low Fleet scenario the Preferred Alternative is estimated to reduce the number of people exposed to noise above 65 dB DNL by 398, a 2 percent reduction compared to the No Action Alternative. However, under the 37.5M High Fleet scenario the Preferred Alternative increases the number of people above 65 dB DNL by 253, a 4 percent increase.

Under the 29M Low Fleet scenario, no one residing in an area exposed to noise above 65dB DNL is projected to experience a noise level increase greater than 1.5 dB due to the Preferred Alternative. In Winthrop 670 people would experience decreases in noise of more than 1.5 dB compared to the No Action Alternative.



Legend

No Action Alternative 29M Low

60, 65 and 70 DNL

Preferred Alternative 29M Low

60, 65 and 70 DNL

Open Space

Census Blocks

Populated

Non-Populated

N

0 0.5 1 1.5 Miles

massport

Figure 2.2-1

Day/Night Sound Levels
29M Low
No Action & Preferred Alternative
Levels 60, 65 and 70 dB DNL Contours

Source: Harris Miller Miller & Hanson

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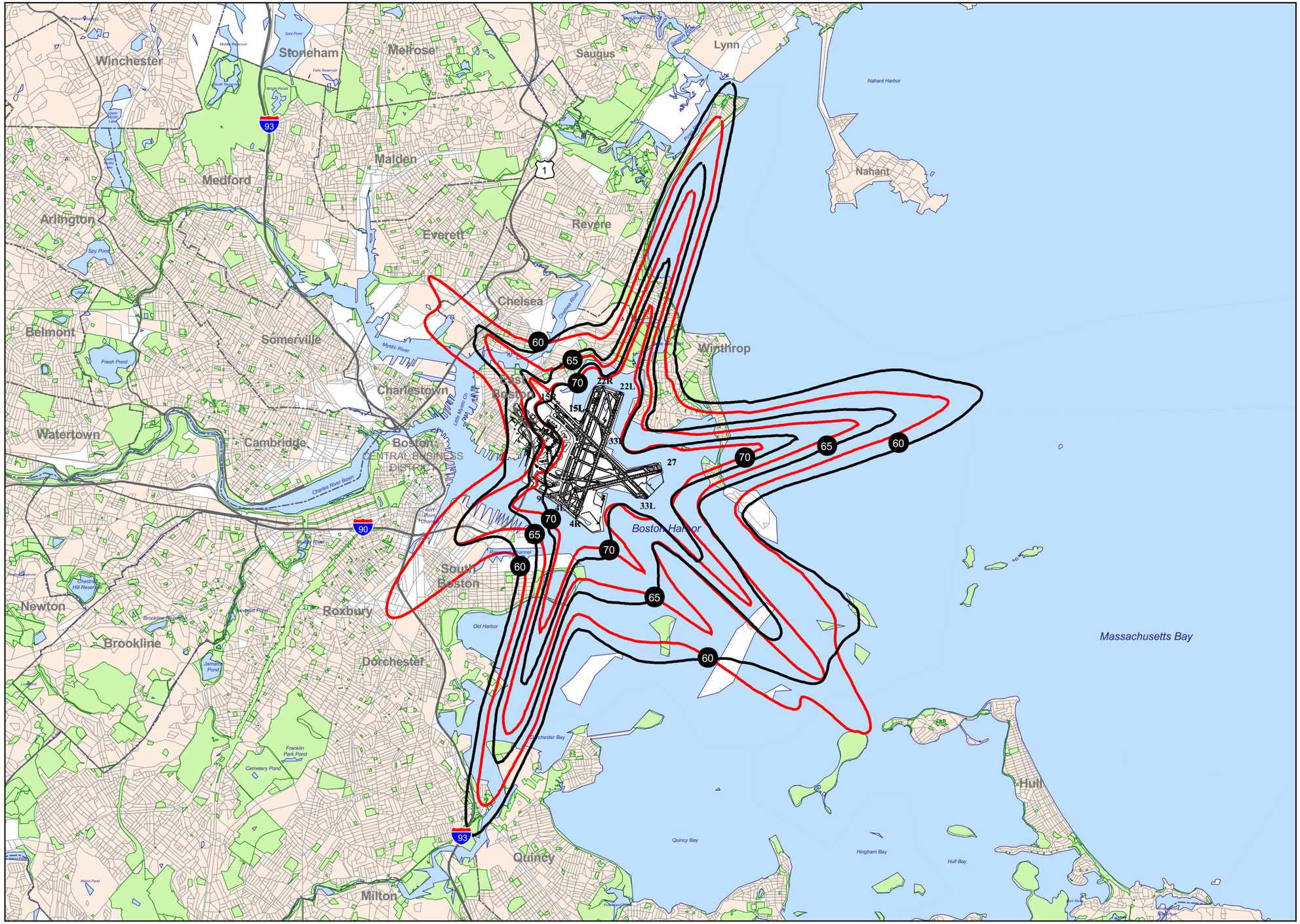

Legend

No Action Alternative 37.5M High

60, 65 and 70 DNL

Preferred Alternative 37.5M High

60, 65 and 70 DNL

Open Space

Census Blocks

Populated

Non-Populated

N

0 0.5 1 1.5 Miles

Figure 2.2-2

Day/Night Sound Levels
37.5 High
No Action & Preferred Alternative
Levels 60, 65 and 70 dB DNL Countours

Source: Harris Miller Miller & Hanson

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In addition to reducing noise exposure at the highest DNL levels, the Preferred Alternative would allow for more flights over water rather than over populated areas, as well as a more balanced geographic distribution of jet operations. Under the 37.5M High Fleet scenario, 41 percent of jets could utilize runways affecting communities north and south of the Airport with the Preferred Alternative, compared to 91 percent for the No Action Alternative. The percentage of jets flying over the water could increase significantly from 6 percent in the No Action Alternative to 30 percent with the Preferred Alternative.

By reducing delay, the Preferred Alternative would consequently reduce the number of nighttime (10:00 PM to 7:00 AM) operations by approximately 5 percent compared to the No Action Alternative under the 29M Low Fleet scenario and by 20 percent under the 37.5M High fleet.

Ground Noise (Aircraft Taxi Operations)

Implementation of the Preferred Alternative would reduce the noise from ground taxi aircraft operations at the locations northeast of the Airport which are most affected by ground taxi noise: the Bayswater section of East Boston, the East Boston Yacht Club, and Loring/Court Road in Winthrop. (Table 2.2-2) The reductions in noise exposure from taxi operations increase over time as activity levels and the resulting congestion on the existing taxiways grow. Section 3.8 includes a discussion of the ground noise impacts with a northwest/southeast wind restriction in place, and Section 3.10 provides a discussion of the ground noise impacts associated with use of the Centerfield Taxiway.

Table 2.2-2
Change in DNL[1] Values from Aircraft Ground Operations, by Noise Monitoring Site
Preferred Alternative vs. No Action

Fleet	Loring/ Court Road Winthrop (NMS#7)[2]	Bayswater and Shawsheen, East Boston (NMS #10)	East Boston Yacht Club, East Boston (NMS #12)	Somerset and Johnson, Winthrop (NMS #6)	Sumner/ Lamson, East Boston (NMS #A)	Jeffries Point Yacht Club, East Boston (NMS #14)	Farragut at 2nd S. Boston (NMS #E)
Average Propagation Conditions							
29M Low	-0.2	-0.8	-1.0	-0.8	0.4	0.6	1.4
37.5M High	-4.7	-1.5	-1.4	-1.5	-0.3	-0.3	0.2
Maximum Propagation Conditions							
29M Low	-0.6	-1.0	-1.2	-0.8	0.2	0.6	-1.1
37.5M High	-4.6	-1.3	-1.2	-1.3	-0.3	-0.3	-2.1

1 Measured in decibels (dB).
2 NMS-Noise Monitoring Site.

2.2.1.1 37.5M High RJ Fleet Analysis

Under the 37.5M High RJ Fleet scenario (a high case scenario for regional jets), as shown in Figure 2.2-3, the Preferred Alternative would also reduce noise-exposure in the most-highly affected communities. Using the updated 2000 Census data, the Preferred Alternative would result in 82 fewer people exposed to noise above a DNL of 75 dB, a reduction of 55 percent compared to the No Action Alternative. The Preferred Alternative would also remove approximately 1,519 people from exposure to DNL levels above 70 dB, a reduction of 41 percent. The population reduction above 70dB DNL that is achieved with the Preferred Alternative under the 37.5M High RJ fleet would increase the number of people in the 65 dB DNL contour by 588. This would be a 5 percent increase compared to the No Action Alternative, as shown in Table 2.2-3.

Under the 37.5M High RJ Fleet scenario, the Preferred Alternative reduces the number of nighttime operations by 13 percent compared to the No Action Alternative. The Preferred Alternative generally reduces the noise from ground movements, lowering DNL levels due to taxi operations by a few tenths to as much as 3 dB at seven close-in monitoring locations. See Section 6.2.7 of the Supplemental DEIS/FEIR. Section 3.8 of this Final EIS includes a noise analysis of the 37.5M High RJ Preferred Alternative with a 10-knot northwest/southeast wind restriction in place.

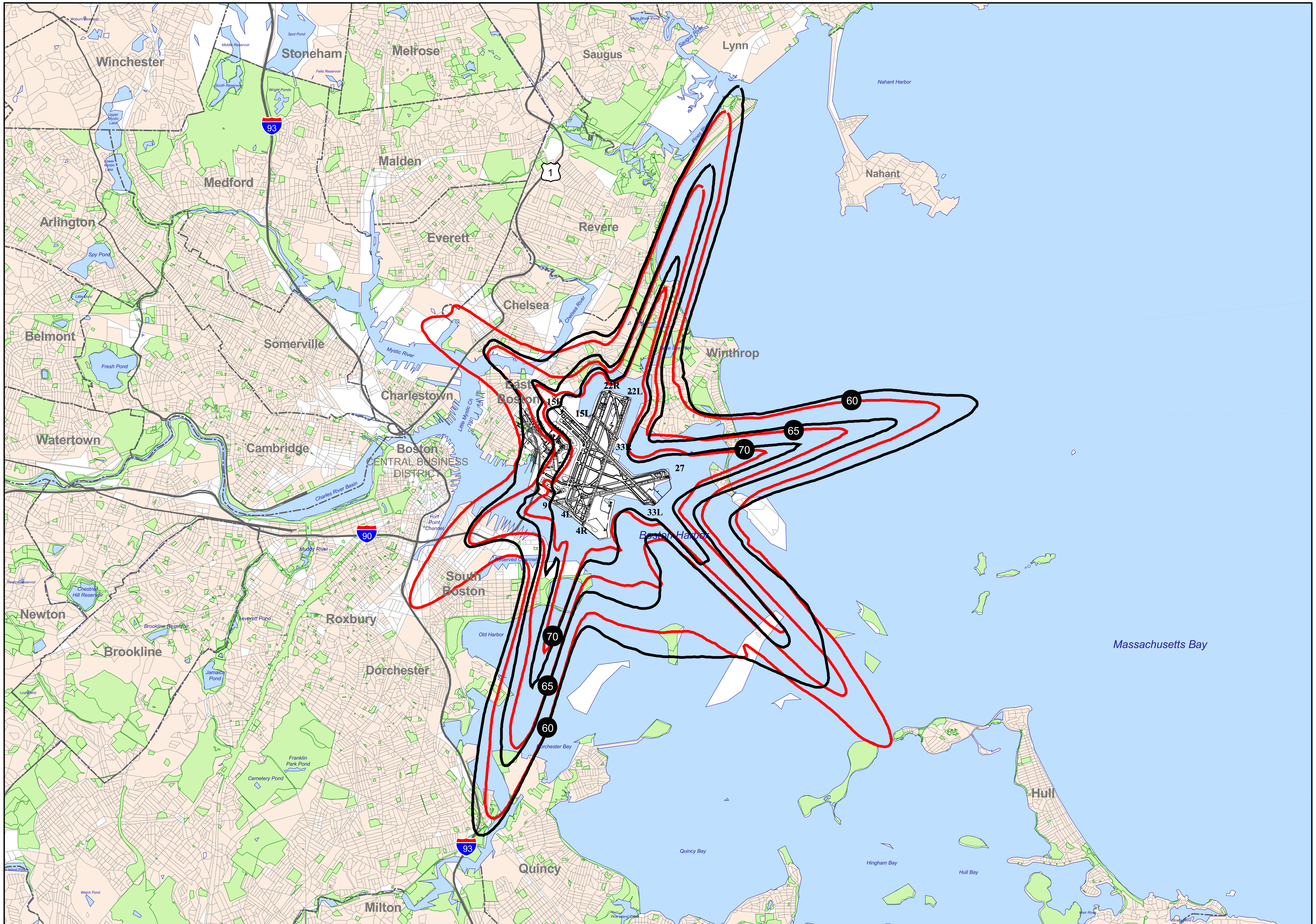
Table 2.2-3
Comparison of Noise-Exposed Population for the No Action and Preferred Alternatives – 37.5M High RJ Fleet Scenario

Day-Night Sound Level in dB[1]	1998 Historic[2]	1999 Historic[2]	No Action Alternative		Preferred Alternative		Preferred Alt. Compared to No Action		Percent Change from No Action to Preferred Alt	
37.5M High RJ Fleet[3]			1990 Census	2000 Census	1990 Census	2000 Census	1990 Census	2000 Census	1990 Census	2000 Census
DNL 75 dB and above	577	411	222	147	58	65	-164	-82	-74%	-56%
DNL 70 dB and above	2,679	2,311	3,700	3,741	2,267	2,222	-1,433	-1,519	-39%	-41%
DNL 65 dB and above	23,296	23,149	11,493	12,478	11,857	13,066	364	588	3%	5%
DNL 60 dB and above	93,860	89,253	36,857	40,701	50,048	54,925	13,191	14,224	36%	35%

1 Except for 1998 and 1999, all estimates are based on runway use chosen to most nearly achieve PRAS goals and reflect the effects of delayed aircraft as determined by the DELAYSIM model.
2 Population counts for 1998 and 1999 are based on 1990 Census data.
3 Reference to the 37.5M High RJ Fleet does not apply to 1998 and 1999.

2.2.2 Social Impacts

The Preferred Alternative will have no significant impacts on land uses adjacent to or in the immediate vicinity of Logan. Relocation required for construction of unidirectional Runway 14/32 involves the tenants of some buildings in the South Cargo Area. Massport will provide relocation assistance as required under applicable law to mitigate impacts to affected tenants.



Legend

No Action Alternative 37.5M High
60, 65 and 70 DNL

Preferred Alternative 37.5M High
60, 65 and 70 DNL

Open Space

Census Blocks
Populated
Non-Populated

N

0 0.5 1 1.5 Miles

Figure 2.2-3

massport

Day/Night Sound Levels
37.5 High RJ Fleet
No Action & Preferred Alternative
Levels 60, 65 and 70 dB DNL Contours

Source: Harris Miller Miller & Hanson

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2.2.3 Air Quality

Due to improved airfield efficiency and shorter delay periods, the Preferred Alternative results in a reduction of air pollutant emissions when compared to the No Action Alternative. As detailed in Section 6.4 of the Supplemental DEIS/FEIR, the Preferred Alternative would not result in any violations of federal or state air quality standards. Section 3.8 includes a qualitative discussion of the air quality impacts associated with the Preferred Alternative with a northwest/southeast wind restriction in place. Section 3.10 includes a similar discussion of the air quality impacts associated with the Centerfield Taxiway.

The Airside Project will not exceed general conformity thresholds and is therefore presumed to conform to the State Implementation Plan (SIP). Consequently, it does not require a federal General Conformity determination for the purposes of air quality.

The Governor of the Commonwealth of Massachusetts, or her designee, will be required to certify to the FAA, in connection with any federal funding approvals, that there is reasonable assurance that the Airside Project will be located, designed, constructed, and operated in compliance with applicable air quality standards. The analysis in the EIS Documents supports such certifications.

2.2.4 Water Quality

As presented in Section 6.6 of the Supplemental DEIS/FEIR, construction of unidirectional Runway 14/32 and the Taxiway components of the Preferred Alternative will create additional impervious surfaces at Logan and will increase the peak rate of runoff from Logan to Boston Harbor by approximately 3.8 percent. The combination of overland flow across grass areas and the large number of discharge locations helps to attenuate and disperse contaminants in the runoff, and therefore the general quality of runoff under the Preferred Alternative is expected to be similar to present runoff quality.

Since the existing water quality in Boston Harbor will not be affected by the construction of the runway or taxiway improvements, there are no adverse water quality impacts that would result from the Preferred Alternative.

The Governor of the Commonwealth of Massachusetts, or her designee, will be required to certify to the FAA, in connection with any federal funding approvals, that there is reasonable assurance that the Airside Project will be located, designed, constructed, and operated in compliance with applicable water quality standards. The analysis in the EIS Documents supports such certifications.

2.2.5 Soils

All soils removed from the site will be managed in accordance with Commonwealth of Massachusetts regulations and Massport policy to minimize impacts. Appropriate

sediment and erosion controls will be employed during construction and disturbed soils will be revegetated.

Section 6.6.3 of the Draft EIS/EIR identifies a potential need to remove soil materials stockpiled on Governors Island for construction of unidirectional Runway 14/32. In response to a request from the Court-appointed receiver for the Rubchinuk Landfill in Middletown, Massachusetts, Massport arranged for the transport of the Massachusetts Highway Department (MassHighway) soils from Governors Island to the Rubchinuk Landfill. The transportation of the MassHighway soils began in June 1999 and was completed in November 2000. Therefore, none of these soils will need to be moved off-site for construction of unidirectional Runway 14/32. This information is documented in Section 6.7 of the Supplemental DEIS/FEIR.

2.2.6 Biotic Communities

By constructing the Centerfield Taxiway and the Taxiway Delta extension, approximately 37 acres of existing grassland will be converted to pavement, resulting in the loss of an area of Upland Sandpiper habitat. As described in Section 6.5.5 of the Supplemental DEIS/FEIR and in Chapter 4 of this Final EIS, an on-site and off-site mitigation plan consistent with aircraft safety has been developed in consultation with the Massachusetts Natural Heritage and Endangered Species Program (NHESP) to mitigate impacts to the Upland Sandpiper.

There are no significant impacts to terrestrial vegetation, wetlands or other wildlife.

2.2.7 Coastal Zone

The Preferred Alternative will have no direct or indirect impact on resource areas, public access, water-dependent businesses, recreation, or other maritime interests in the coastal zone. Appendix E contains correspondence from the Massachusetts Office of Coastal Zone Management regarding its view of the consistency determination, stating its belief that the Preferred Alternative is consistent with the Massachusetts coastal zone management program to the maximum extent practicable.

2.2.8 Historical Resources

The FAA has determined, with concurrence from the Massachusetts Historical Commission, that the Preferred Alternative will have no adverse effect on historic properties. Refer to Appendix H of the Supplemental DEIS/FEIR, which contains a copy of the letter from the Massachusetts Historical Commission, December 21, 1999. As described in Section 5.3 of the Supplemental DEIS/FEIR, cultural resources including historic resources and parklands, which are regulated under Section 4(f) of the Department of Transportation Act, the National Historic Preservation Act ("Section 106") and by state regulations concerning historic properties, are not actually or constructively used by the Preferred Alternative.

The few historic residential properties within the 29M Low 65 dB DNL contour associated with the Preferred Alternative will be provided with sound insulation in accordance with historic building rehabilitation standards established by the Secretary of the Interior (36 CFR 800.5(b)). As described in Section 3.8, no additional historic properties fall within the 29M Low 65 db DNL contour as a result of the northwest/southeast wind restriction.

2.2.9 Other Section 4(f) Resources

The implementation of the Preferred Alternative will neither incorporate land from a Section 4(f) resource nor affect the normal activity or aesthetic value of a public park, recreation area or wildlife refuge. The Preferred Alternative does not add any new parklands within the 65 dB DNL contour. While the Arnold Arboretum, Emerald Necklace and Franklin Park are well outside the 65 dB DNL contour, the Boston Harbor Islands are already within the No Action 65 dB DNL contour, will not experience new noise impacts, and will not be actually or constructively taken by the Airside Project.

2.2.10 Environmental Justice

As described in Section 6.8 of the Supplemental DEIS/FEIR and Section 3.6.4 of this Final EIS, there is no disproportionately high and significant adverse impact on minority and low-income populations caused by the Preferred Alternative. Significant adverse noise impacts of Logan Airport are not predominately borne by minority or low-income populations. Using the updated Census 2000 census population counts, only 34 percent of the population within the Preferred Alternative's 65 dB DNL contour is minority, compared to the baseline Suffolk County population, which is 48 percent minority. Based on the 1990 Census data, less than 2 percent of the population within the 65 dB DNL contour has a household income of less than 150 percent of the federally defined poverty level for the Boston area.[2] As described in Section 3.8 of this Final EIS, a northwest/southeast wind restriction would not alter the conclusion that there is no disproportionately high and significant adverse impact on minority or low income populations caused by the Preferred Alternative.

The additional area within the 65 dB DNL contour associated with the Preferred Alternative includes a predominantly Hispanic neighborhood in Chelsea that is predicted to experience an increase of 0.6 dB or less under the near-term 29M Low Fleet, a conservative upper bound based on total noise exposure. Under FAA standards, this change is not a significant adverse impact. Nonetheless, mitigation of the increased noise will be provided to the affected community in the form of residential sound insulation. A northwest/southeast wind restriction reduces noise impacts in Chelsea compared to the unrestricted Preferred Alternative (see Section 3.8).

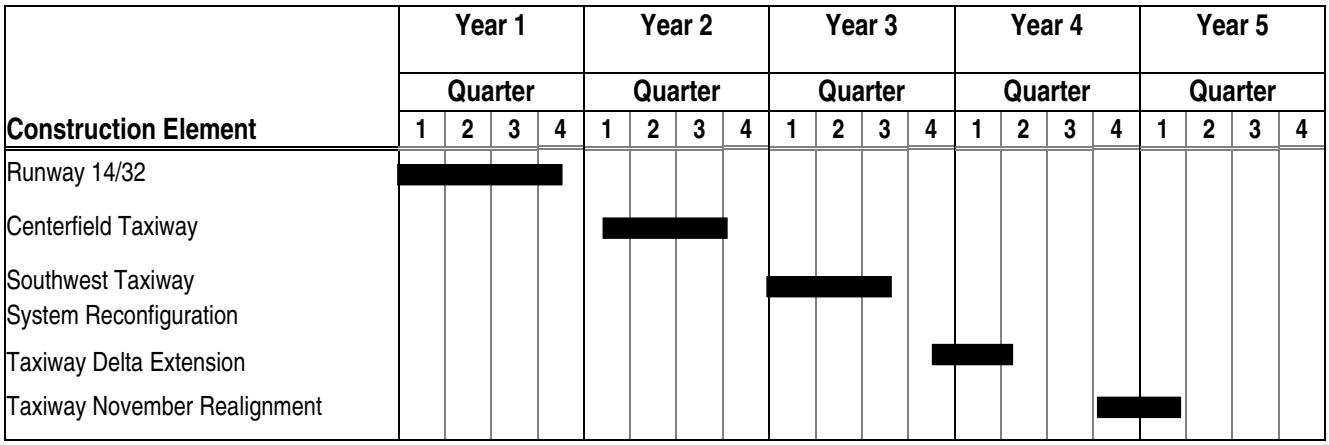
2 Updated income data from the 2000 Census will not be available until June 2002 or later.

2.2.11 Construction

Construction of the runway and taxiway improvement components of the Preferred Alternative will occur on the existing airfield. Construction will be managed to minimize noise, air and water pollution, and other impacts to the adjacent community. Construction impacts for the Preferred Alternative are detailed in Section 6.9 of the Supplemental DEIS/FEIR, and proposed mitigation for construction impacts is described in Section 8.5.2 of the Supplemental DEIS/FEIR. A cumulative construction noise analysis is provided in Appendix I of this Final EIS.

The total period for the phased construction of the runway and taxiway improvement components of the Preferred Alternative is approximately five years beginning in 2003, as outlined in Figure 2.2-7. This is an aggressive construction phasing schedule that coincides with a wide range of other airport construction projects and therefore represents a worst case scenario for cumulative construction related environmental impacts. Construction vehicles would access the airport on designated haul routes via the Ted Williams Tunnel or Route 1A, and thus would not impact local residential streets adjacent to Logan. Construction traffic associated with the Preferred Alternative will be reduced significantly from the number of truck trips presented in the Airside Project Draft EIS/EIR as a result of the reduction of soil material to be moved off-site. (See Section 6.9 of the Supplemental DEIS/FEIR.)

Figure 2.2-7
Construction Sequence and Schedule



2.2.12 Adverse Impacts Which Cannot Be Avoided

The only adverse impact is a potential increase in the number of people within the 65 dB DNL contour under certain future fleet scenarios. This potential impact, however, is accompanied under all future scenarios by a reduction in the number of people exposed to higher noise levels (i.e., 70 dB DNL and above). Residential structures within the 65 dB DNL contour under the 29M Low fleet scenario will be sound insulated (see Section 4.1.3 of this Final EIS).

2.2.13 Short-Term Uses and Long-Term Productivity

Logan is an important element in the regional transportation network. Implementation of the Preferred Alternative, which includes unidirectional Runway 14/32, would improve the efficiency, safety and reliability of current and projected operations at Logan. The Preferred Alternative is expected to reduce annual runway delays and nearly eliminate delay associated with northwest wind conditions. Construction of unidirectional Runway 14/32 would increase the FAA's runway selection options and provide the opportunity to improve performance relative to the PRAS goals. Similarly, by increasing operations over water, unidirectional Runway 14/32 would reduce the total annual hours of dwell and persistence over populated areas in accordance with short-term PRAS goals. As a result, the Preferred Alternative would be effective in reducing the population within the 70 and 75 dB DNL noise contours.

The impacts associated with the Preferred Alternative include: the dislocation of the tenants in the South Cargo Area; an increase in noise exposure of less than 1.5 dB DNL for some residences above 65 dB DNL; and, the loss of approximately 37 acres of Upland Sandpiper habitat. A series of mitigation measures and commitments are proposed to address these impacts, including the provision of relocation assistance to the cargo building tenants in accordance with applicable laws, as well as sound insulation of affected residences within the 65 dB DNL noise contour for the 29M Low fleet scenario. Sound insulation of the few historic residential properties within this contour will be undertaken in accordance with standards established by the Secretary of the Interior (36 CFR 800.5(b)). A Conservation and Management Plan has been developed under state law to provide a long-term net benefit to the Upland Sandpiper population.

In consideration of the benefits to be derived from the Preferred Alternative and the measures to be employed to mitigate impacts, FAA concludes that the short-term use of resources required to implement the Proposed Action is consistent with the long-term goal of improving the efficiency and reliability of aircraft operations at Logan and will not adversely affect environmental resources in the long-term.

2.2.14 Irreversible and Irretrievable Commitment of Resources

Implementation of the Preferred Alternative would require certain irreversible and irretrievable commitments of resources; however, there are no new, unusual, or limited sources of materials associated with the Preferred Alternative. Construction of the runway and taxiway improvements will consume fuel and result in the consumption of raw materials such as gravel, concrete and other materials required for the construction process. Materials from demolition of existing structures will be recycled to the extent possible. There are no materials required for the construction or operation of the Preferred Alternative that are known to be in short supply. Although there will be some impacts to natural resources, measures will be implemented to mitigate both short-term (construction) and long–term impacts to the greatest extent practicable.

2.3 Cumulative Impacts

Chapter 7 of both the Draft EIS/EIR and the Supplemental DEIS/FEIR present an assessment of incremental environmental impacts of the Alternatives in the context of other past, present and foreseeable projects and identified their interrelationships and/or independence. Section 7.5 of the Supplemental DEIS/FEIR presents an updated construction management plan that quantifies the number of daily and total truck trips and includes construction activity that will occur simultaneously with the Central Artery/Tunnel construction in East Boston, other Logan projects, and any other major construction activities planned to occur in East Boston.

The Airside Project noise assessment is based upon a cumulative examination of all aircraft operations, including in-flight as well as ground taxi noise. As described earlier in this chapter, by reducing delay and increasing the ability to meet PRAS goals, the Preferred Alternative provides an opportunity for reduction in noise for the areas most severely affected by airport noise.

As addressed in Section 7.3 of the Supplemental DEIS/FEIR, there are no significant aircraft noise impacts associated with the operation of the other present and reasonably foreseeable landside projects at Logan or elsewhere in the vicinity of Logan. Therefore, there are no cumulative noise impacts created by the combination of these projects with the proposed Airside Project improvements.

There are no long-term cumulative air quality impacts resulting from the Preferred Alternative, as detailed in Section 7.4 of the Supplemental DEIS/FEIR. The Airside Project air quality assessment evaluated cumulative impacts associated with all airport-related sources of air emissions, including on- and off-airport motor vehicles. Results indicate that overall air quality impacts are beneficial or will remain within the National Ambient Air Quality Standards (NAAQS).

Construction traffic from the proposed Airside Project improvements, as outlined in Section 7.5 of the Supplemental DEIS/FEIR, would not add significantly to the existing volume of traffic. Peak Airside Project truck traffic is estimated to be approximately 184 trips per day, less than 0.2 percent of the existing traffic volume on the regional highway system.

2.3.1 Background on the Cumulative Analysis of Logan Airport Projects

From both functional and environmental impact perspectives, Logan can be divided into two components: landside facilities and airside facilities. Functionally, the landside facilities are those that accommodate the ground movement of passengers to-and-from Logan and to-and-from aircraft. Landside facilities consist primarily of roadways, vehicular parking lots and garages, passenger terminals, and airport service areas. The primary functions of the airside facilities are to accommodate aircraft operations (i.e., landings and takeoffs) and movements (i.e., taxiing). The airside facilities consist of Logan's runways, taxiways and apron areas.

Analysis and consideration of both project-specific and cumulative environmental impacts are important elements for identifying and, where appropriate, recommending and implementing capital improvement projects. For those project concepts which meet certain established regulatory threshold criteria, the environmental evaluation process is formalized through appropriate documents prepared and submitted for public review in accordance with both federal law (the National Environmental Policy Act as amended (NEPA)), pertinent implementing federal regulations and agency orders, state law (the Massachusetts Environmental Policy Act as amended (MEPA)), and pertinent implementing state regulations.

Environmental review of Logan operations takes place at two levels. The first is a comprehensive, cumulative analysis in the form of the state required Logan Airport Generic Environmental Impact Report (GEIR) now known as the Logan Airport Environmental Status and Planning Report (ESPR), and associated Logan Airport Annual Updates, now known as Environmental Data Reports (EDRs). The GEIR/ESPR cycle, which includes the *1994/95 GEIR, 1996 Annual Updat*e, *1997 Annual Updat*e, *1998 Annual Update,* the *1999 ESPR*, and the *2000 EDR* (filed on December 17, 2001):

- Presents annual environmental conditions for noise, ground access, air quality and water quality, and assesses the cumulative impacts of current and predicted levels of the various types of operations on both the landside and airside facilities;
- Reports on the status of planning, design, and construction activities at Logan; and,
- Presents and tracks Massport's environmental mitigation commitments.

The GEIR/ESPR cycle provides context to on-going planning at Logan and has been used by FAA to inform its review of individual project concepts.

The second level of environmental review is project specific. Potential improvement projects that proceed from the planning to the proposal stage are also subject to individual NEPA and MEPA review, if such projects exceed established thresholds. The level of project review varies and may include: (i) initiating a federal Environmental Assessment (EA) or Environmental Impact Statement (EIS) in anticipation of Federal Aviation Administration (FAA) funding or Airport Layout Plan approval, and/or (ii) filing an Environmental Notification Form (ENF) to initiate the state review process under MEPA, which may require the preparation of an Environmental Impact Report (EIR). The focus of individual project review centers on the comparative analysis of impacts/ benefits associated with various Project alternatives, including the Preferred Alternative and a No Action Alternative. Both federal and state individual project review also includes consideration of project impacts within a cumulative project impact context.

The Draft EIS/EIR and Supplemental DEIS/FEIR assess cumulative environmental impact in accordance with Council on Environmental Quality (CEQ) regulations and guidance and FAA implementing directives, as well as the MEPA regulations. The CEQ regulations define cumulative impact as that "which results from the incremental impact

of the action when added to other past, present, and reasonably foreseeable future actions..." (CEQ, 40 CFR 1508.7). In determining the scope of environmental documents with regard to cumulative impact, the CEQ regulations require that agencies consider actions which may be "connected" (i.e., actions that automatically trigger other actions, cannot proceed in the absence of other actions, or are interdependent parts of a larger action), "cumulative" (i.e., when viewed with other actions have cumulatively significant impacts), or "similar" (i.e., when viewed with other reasonably foreseeable or proposed actions have similarities that provide a basis for evaluating their consequences together.)

The purpose of the Airside Project is to reduce aircraft operating delays and enhance the safety of the Logan airfield. The proposed Airside Project improvements focus on improving the efficiency of aircraft operations. The improvements associated with the Airside Project serve a functionally different purpose than the many different landside projects that are designed to improve the ground access of passengers to and from Logan and to and from aircraft, or to improve passenger processing and services.

The Airside Project has independent utility, and will not stimulate, preclude, or otherwise determine other development anticipated as part of Massport's landside planning effort. Each of the projects occurring or planned in the Logan vicinity make sense on their own, and their justifications stand alone. None of the past, present, or foreseeable future Logan projects is functionally or economically interdependent with the proposed Airside Project. The Airside Project will not foreclose future options or irretrievably commit resources to future projects. In relation to the Airside Project none of the past, present or reasonably foreseeable future landside projects are functionally "similar," causing unaddressed or unforeseen environmental impacts which accumulate, or are "connected," causing overlapping environmental impacts in the same geographic area or timeframe which have not been fully addressed in the NEPA documents for the Airside Project.

A series of documents, including (i) those prepared by Massport in accordance with the Massachusetts Environmental Policy Act; (ii) three Environmental Assessments (EAs) for Logan Airport adopted by the FAA as federal documents under NEPA; and (iii) the voluminous Central Artery/Tunnel (CA/T) Project Environmental Impact Statement and NEPA record prepared by the Federal Highway Administration, all provide extensive information about the expected regional and cumulative environmental impacts associated with continued operation of Logan and the expected growth in air passengers served by Logan.

2.3.2 Relationship of the GEIR/ESPR Process to the Logan Airside Project

The Logan Airport 1994/95 Generic Environmental Impact Report (GEIR) and its *1996, 1997* and *1998 Annual Updat*es, EOEA # 3247/5146, (collectively the GEIR), the subsequent *1999 ESPR*, and *2001 Environmental Data Report (EDR),* EOEA # 3247[3], provide a comprehensive evaluation of the cumulative effects of growth and change at Logan, and serve as a

3 The *2000 Environmental Data Report* (EDR) was filed on December 17, 2001.

planning tool for current and future projects proposed by Massport and reviewed by the FAA. The GEIR/ESPR provides an overview of the relationship of airport operations, as a whole, to local and regional noise, ground access, air quality, and water quality conditions. Individual projects such as the Airside Project are described in the GEIR/ESPR. These projects subsequently undergo individual project review under NEPA and/or MEPA if environmental review thresholds are met.

The Supplemental DEIS/FEIR in Section 4.2 provided in-depth analysis of Logan's future airfield operating conditions with and without the Preferred Alternative. The Supplemental DEIS/FEIR built upon the Airside Project Draft EIS/EIR and the GEIR/ESPR in its analysis of impacts, and provided a broader understanding of the potential benefits and impacts of proposed changes to existing and future Logan airside operations. This Final EIS provides additional analysis and information.
The analysis conditions presented in the GEIR/ESPR are consistent with those used for the Airside Project EIS/EIR. Both the Logan GEIR/ESPR and the Airside Project evaluate future conditions at Logan associated with annual passenger levels of 29 million (29M) and 37.5 million (37.5M). The GEIR/ESPR evaluated impacts for future analysis conditions and all passenger levels using a mid-range aircraft fleet. The *1999 ESPR* evaluated a high "Regional Jet" fleet (High RJ Fleet) for the 37.5M annual passenger activity level. To identify the range of potential impacts associated with future airfield operations, the Airside Project EIS/EIR expands on the GEIR/ESPR airport operational analysis by evaluating both a High and Low range fleet that bracketed the GEIR/ESPR mid-range fleet assumptions. In addition, the Supplemental DEIS/FEIR also evaluates the 37.5M annual air passenger fleet with a high proportion of regional jets. These fleets represent a range of operational scenarios, reflecting higher and lower numbers of aircraft operations and fleet mixes to deliver the same specific passenger level. In this manner, the impacts of Airside Project proposed improvements are identified as a function of aircraft operations.

The Draft EIS/EIR and Supplemental DEIS/FEIR provide a comprehensive analysis of cumulative impacts associated with the Preferred Alternative. The EIS/EIR analysis involves a review of impacts generated by airfield operations (i.e., aircraft takeoffs and landings and taxiing) for 1993 Historic Modeled Conditions, 1998 Actual Conditions and future scenarios of 29M annual air passengers with a Low Fleet assumption (29M Low Fleet), and 37.5M air passengers with an RJ Fleet (37.5M High RJ Fleet) as well as the High Fleet (37.5M High Fleet). This Final EIS also provides an evaluation of a 29 M High RJ Fleet, the impacts of which are discussed in Chapter 3.

The Airside Project Supplemental DEIS/FEIR expanded on the analysis of impacts from airside operations that was provided in the *Logan Airport 1994/95 GEIR* and the *1996, 1997, and 1998 Annual Updates* and the *1999 ESPR* by including the following:

- Analysis of high and low aircraft fleets scenario, compared to analysis of mid-range fleet in the GEIR;

- New cumulative noise impact analysis which takes into account changes in runway use that result from some of the improvements under review and a greater ability to achieve PRAS goals; and
- New cumulative air quality impact analysis based on changes in aircraft taxiing routes and patterns that are intended to result from certain of the improvements under review.

Overall, the Airside Draft EIS/EIR and Supplemental DEIS/FEIR analysis of future No Action scenarios is consistent with the findings of the GEIR/ESPR and provide an analysis of the potential cumulative impacts and benefits of the airside and landside projects. The assessment of the environmental effects of airport operations described in the *1994/95 GEIR* and *the 1996, 1997, and 1998 Annual Updates* and the *1999 ESPR* were incorporated by reference in the Draft and/or the Supplemental DEIS/FEIR and provide a starting point for the environmental impact analysis presented in the Supplemental DEIS/FEIR.

2.3.3 Relationship of the Logan Airside Project To Other Projects

The purpose of the Airside Project is to reduce current and projected levels of airfield congestion and delay and to enhance the safety of aircraft operations at Logan. Massport's proposed landside improvements are planned to enhance the efficiency of passenger processing, and include terminal modernization, as well as roadway, parking and service area improvements. The landside projects will not affect the design or implementation of the Airside Project, which has independent utility, nor will the Airside Project improvements affect the design or implementation of any of the landside projects. If, and when, other airside and landside projects are proposed, they will continue to be the subject of separate comprehensive environmental analysis by project proponents in accordance with federal and state regulations. This section updates the evaluation of past, present and reasonably foreseeable future projects in the Logan Airport vicinity set forth in the Supplemental DEIS/FEIR and as available at the time of publication of this Final EIS. Table 2.3-1 provides a status update of the projects planned for Logan Airport for the terminal area, the service areas and the airside.

2.3.3.1 Logan Modernization Projects

Logan Modernization is a Massport capital investment program currently underway to accommodate current and future passenger activities. Logan Modernization consists of projects that will modernize the terminal areas and other landside facilities to address problems of terminal overcrowding, roadway congestion and inadequate parking. The goal of Massport's proposed terminal projects, as described in Section 7.3 of the Supplemental DEIS/FEIR, is to enable Logan to provide modern, efficient service to its passengers while they are on the landside, and to facilitate servicing of the terminals.

West Garage Project, Elevated Walkways and Terminal Roadways

In March 1995, based on an Environmental Assessment (EA), the FAA issued a Finding of No Significant Impact (FONSI) for the West Garage Project. The EA considered the impact

of past, present, and foreseeable projects, including the Central Artery/Tunnel (CA/T) Project which was itself the subject of a comprehensive Environmental Impact Statement (EIS). The CA/T EIS analyzed the regional traffic considerations implicated by the proposed access improvements to Logan, including the expected future growth of air passengers at Logan. The proposed West Garage roadways connect the CA/T roadways in East Boston to the planned roadway infrastructure at Logan.

Phase I of the West Garage Project opened in September 1998. This Project consolidated 3,150 parking spaces from remote, at-grade parking lots serving Logan, and offset the loss of spaces to other Logan landside construction projects. With the West Garage addition in the terminal area parking complex, Logan Airport created a convenient Central Parking Facility to serve the terminal area. Elevated pedestrian walkways link the facility to the four terminals. Walkways with moving sidewalks connect the West Garage to Terminals A and E. In 1999, the construction of the walkways to Terminals B and C began and is expected to be completed by 2003.

Massport has evaluated design options for Phase II of the West Garage and has concluded that the most cost effective way to proceed with Phase II is to add three levels of parking to the Central Garage rather than provide the spaces in the location originally planned. A Notice of Project Change (NPC) was filed with the Executive Office of Environmental Affairs, Massachusetts Environmental Policy Act (MEPA) Office on October 31, 2000, describing the proposed changes and associated environmental impacts. The Executive Office of Environmental Affairs (EOEA) Secretary's Certificate on the NPC, issued December 8, 2000, indicated that no further MEPA review was required. No further federal review was required as well.

Terminal roadway improvements are being coordinated with the CA/T and Logan Modernization projects to incorporate the airport roadway system into the regional highway system and to improve vehicle capacity and access to the terminals. The roadway improvements have been designed and are under construction with completion expected in 2003.

International Gateway/Federal Inspection Services

The International Gateway Project at Terminal E is being built in response to the continued growth in international activity by both United States and foreign flag carriers at Logan. A state-of-the-art, high-efficiency facility will enlarge Logan's congested Federal Inspection Services (FIS) facility, the meeter/greeter lobby, and the ticketing area, and will promote passenger convenience by reducing processing times. The FIS facility will be located south of the existing Terminal E. Additionally, to reduce curb and roadway congestion at the terminal, this Project also includes a new double-decked roadway system for arrivals and departures.

Table 2.3-1
Logan Airport Projects and Planning Concepts

Completed by 12/31/01	Anticipated Completion by 2003	Anticipated Completion after 2003
TERMINAL AREA		
Massport Projects and Planning Concepts		
	Central Heating/Cooling Plant Modifications[1]	International Gateway-Federal Inspection Services Facility (FIS)[1]I
	Terminal Area Roadways[1]	International Gateway-West Concourse
	Elevated Walkways to Terminals B and C[1]	Airport Intermodal Transit Connector (AITC)
		Terminal B Satellite FIS Facility [2]
		West Garage Phase II [2]
Tenant Projects and Planning Concepts		
US Airways Terminal B		Delta Air Lines Terminal A Replacement
United Airlines Terminal C Renovation[1]		American Airlines Terminal B, Pier A Improvements
SERVICE AREAS		
Massport Projects and Planning Concepts		
Jet Fuel Storage Facility	United Airlines Hangar[1]	Commercial parking facilities[3]
Jet Fuel Distribution System	Bayswater Edge Buffer	Replacement cargo/hangar facilities[3]
		Consolidated Rental Car Facility[3]
		Southwest Service Area Buffer
		Relocated/Additional Compressed Natural Gas Stations[3]
		Robie Parcel Development
		Navy Fuel Pier
		GSE Facility
Tenant Projects and Planning Concepts		
	Replacement Ground Service Equipment Facilities[3]	US Postal Service Facility[3]
		Flight Kitchen Relocation/ Renovation[3]
AIRSIDE AREA		
Massport Projects and Planning Concepts		
		Runway 33L Safety End Improvements[3]
		Airside Improvements Planning Project[2]

1 Project under construction.
2 Project undergoing MEPA and/or FAA review.
3 Project concept undergoing evaluation and/or feasibility screening.

Based on an EA, the FAA issued a FONSI for the International Gateway Project under NEPA. The EA considered the impact of past, present, and foreseeable projects. Construction of Phase I of the International Gateway Project began in 1998, with an anticipated completion in 2004. Phase II, a new West Concourse, which will add three gates to handle international activity, is being evaluated. The Project includes rehabilitation of the Central Cooling and Heating plant. Rehabilitation of the Central Heating and Cooling Plant began in 1998, and is expected to be completed by 2003.

Airport Intermodal Transit Connector

The Airport Intermodal Transit Connector (AITC) Project is part of an interagency effort undertaken by Massport and the MBTA. The proposed AITC will provide a user-friendly transit alternative for air passengers and other users of Logan such as employees and meeters/greeters. The AITC will be a "dual-route," enhanced bus service that will directly connect Logan with South Station (the red route) via the Ted Williams Tunnel and the South Boston Transitway (now known as the Silver Line Phase 2), and with the MBTA Blue Line (the blue route). The two-route AITC bus system will expand the intermodal reach of Logan. It will represent a new public transportation route between Logan and South Station, and will improve intermodal links between Logan and the MBTA Red Line, the commuter rail, and the intercity rail (Amtrak). The new Airport Station will provide an improved connection to the AITC Blue line; it also may become a stop on the MBTA's proposed Circumferential Transit service. The AITC will create an alternative option for a one-seat ride from both the Financial District and the South Boston Seaport District to the Logan terminals.

Both routes of the AITC are expected to be operational by 2004 with timing dependent upon completion of the MBTA's South Boston Piers Transitway Project and the new MBTA Blue Line Airport Station. The AITC is currently on the Massachusetts Transportation Improvement Program (TIP), making it eligible for Federal funding. Massport is working with the MBTA to procure new buses for the AITC and to address other issues regarding operations, maintenance, scheduling, and program requirements.

Terminal A Replacement

The proposed replacement of existing Terminal A is being designed to enable Delta Air Lines to process current and forecasted passengers with a high degree of passenger amenity, safety and efficiency. The facility is expected to consist of a main terminal located on the Airport roadway with ticket and baggage services. This would be linked via a pedestrian tunnel to a satellite concourse located along Harborside Drive. The satellite concourse will be designed to serve as a noise buffer between Logan and the adjacent Jeffries Point neighborhood. The Project design will incorporate sustainable design and construction principles.

Based on an EA, the FAA issued a FONSI for the Terminal A Replacement Project on September 13, 2000. The EA considered the impact of past, present, and foreseeable projects. The state environmental approval process also is complete. Construction began in 2002, with the closing of Terminal A.

2.3.3.2 Other Terminal Area Improvement Projects

In addition to the Logan Modernization projects, Massport also planned or is anticipating a range of landside projects that will improve Airport service areas, tenant facilities and Airport maintenance programs, as described below.

US Airways Terminal B Consolidation

US Airways has consolidated its mainline, commuter, and Shuttle (formerly at Terminal A) operations in one location. To accommodate these operations, Terminal B's Pier B was modified. This Project included the construction of a two-level addition totaling 65,000 square feet at the south end of Terminal B, Pier B, providing additional holdrooms, concession areas, baggage handling, and airside operations space. These improvements allow US Airways to operate more efficiently and will improve passenger service. Construction of the US Airways Terminal B Consolidation Project began in 1999 and is complete. The FAA determined the US Airways Terminal B Consolidation Project to be categorically excluded under NEPA.

United Airlines Terminal C, Pier B Improvements

United Airlines has consolidated its services and facilities from different terminals to Terminal C, Pier B. Construction of the Project began in early 1999 and was complete in early 2002. The FAA determined the United Airlines Project to be categorically excluded under NEPA.

American Airlines Terminal B, Pier A Improvements/Massport Satellite FIS Facility

Massport and American Airlines are planning improvements to Terminal B, Pier A, to better accommodate recent passenger demands and anticipated future passenger growth. American Airlines proposes to consolidate all of its Boston operations, including its existing domestic and international operations, into one location. American plans to do this by renovating the existing Pier A of Terminal B to provide improved circulation, ticket space, baggage handling, concessions, and other amenities. To accommodate international operations more efficiently, Massport proposes to construct a new satellite FIS facility at the southeast end of Terminal B, Pier A.

On May 31, 2000, a joint Massport/American Airlines ENF was filed with MEPA. On August 24, 2000, the FAA determined the Projects to be categorically excluded under NEPA. On August 17, 2001 the Secretary of EOEA issued a Certificate on the Project EIR stating that it adequately and properly complies with the Massachusetts Environmental Policy Act (MEPA). The Project Section 61 commitments were finalized in late fall 2001. Construction of the American Airlines portion is anticipated to begin in 2003; Massport's satellite FIS has been put on hold.

2.3.3.3 Service Area Projects

Massport is engaged in on-going strategic planning to explore ideas for more efficient use of limited land resources within the Airport service areas. The four Airport service areas

at Logan are the North Service Area/North Cargo Area, Southwest Service Area, Bird Island Flats/South Cargo Area, and Governors Island. Service area activities include but are not limited to the following: freight/air cargo operations, aircraft maintenance, food preparation, and airfield and facilities maintenance.

ParkEX Relocation

According to a 1991 Memorandum of Understanding between Massport, MassHighway, the City of Boston, and Bremen Street Trust (owners of the ParkEX parking facility), the 1,377-space ParkEX facility was to be moved from its current 12-acre, off-airport location on Bremen Street to an 11-acre site that is currently used for rental car parking in the Southwest Service Area (SWSA) of Logan. The East Boston Three-Way Land Transfer ENF and EIR were submitted to MEPA in Spring and Fall 2000.

After the filing of the ENF and EIR, Massport, ParkEX, and the CA/T Project concluded that an alternative land transfer (Buy Out Alternative) offered important environmental and operational advantages. The Buy Out Alternative involved the purchase of the Bremen Street lot by Massport, the transfer of this parcel to MassHighway to allow for the construction of a park, and the transfer of the Robie Industrial Parcel to Massport. No transfer of existing airport land was involved. The 1,377 existing parking spaces from the Bremen Street lot will be transferred to Logan. The Buy Out Alternative better facilitates CA/T Project construction of the Route 1A interchange highway improvements than under the approved East Boston Three-Way Land Transfer. A Notice of Project Change (NPC) describing the Buy Out Alternative was filed with MEPA on October 31, 2000, and EOEA determined that no further environmental review was required. Transfer of the Bremen Street lot and the Robie Industrial Parcel pursuant to the Buy Out Alternative was completed in January 2001.

Replacement Cargo Buildings

The demolition of air cargo buildings 12 and 13 to accommodate the CA/T roadways will reduce Logan's air cargo space in the North Cargo Area. In the North Cargo Area alone, more than 150,000 square feet of cargo building space will be lost to accommodate the CA/T roadways. Replacement on-airport cargo facilities are needed in order to meet existing needs of the air cargo industry operating at Logan. The Robie Industrial parcel, owned by Massport, is located adjacent to the North Cargo Area of the Airport. The 6.9-acre parcel, a former airport industrial park, is currently used for airport parking and as a construction staging area for CA/T project construction. A replacement cargo building is proposed on the parcel.

Consolidated Car Rental Facility

Massport is evaluating the feasibility of consolidating rental car operations in the South West Service Area (SWSA) to accommodate all car rental operations. Storage and maintenance of portions of the rental car company fleets are currently dispersed throughout the service areas and at off-airport locations. A consolidated car rental facility would reduce the number of on-airport shuttle bus trips that currently run between the individual car rental lots and the terminals. Rental car consolidation is a growing national

trend at major commercial airports because of its land use conservation and reduced roadway impacts.

Water Shuttle Dock Improvements

Massport has begun expanding the existing on-airport water shuttle dock to accommodate the growing demand for additional vessels and to comply with accessibility requirements.

Airport Edge Buffer Projects

Massport's goal is to enhance the public edges of Logan with attractive architecture and landscape improvements. Massport has committed up to $15 million for the planning, construction, and maintenance of the Logan Airport landscape. The landscaping effort includes buffers located in various areas generally along the airport's perimeter boundary that define the airport's boundaries and provide a transition from airport to community uses.

The buffers are being designed in consultation with Logan Airport's neighbors and others in an open community planning process. To discuss East Boston open space planning, Massport also participates in meetings with other state and city agencies including MassHighway, the CA/T Project, the MBTA, the City of Boston's Conservation Commission, and the Boston Redevelopment Authority as requested.

- Bayswater Embankment Buffer. In early 1998 through the Spring of 2000, Massport conducted a community planning process to develop a landscape beautification and streetscape improvement program for the Bayswater Embankment. Construction began in July 2000. Construction of Phase 1 was completed in 2001.
- Navy Fuel Pier Buffer. Massport is helping the Jeffries Point neighborhood facilitate the Army Corps of Engineers' (ACOE) remediation of the former Navy Fuel Pier. The Jeffries Point Neighborhood Association is briefed regularly on the project's progress. The ACOE performed remediation at the site during the summer of 2001. The remediation consisted of excavating approximately 4,400 tons of petroleum-impacted soil and offsite transport of the soil to an appropriate disposal location. The excavation was backfilled with clean soil to restore the site's grade and loam and lawn seed were applied to re-establish vegetation. The ACOE will be conducting additional subsurface investigations along Marginal Street that are necessary to complete the site assessment. Environmental work is not being delayed by the current financial condition.
- Southwest Service Area Buffer. In the Spring of 1999, Massport selected a consultant team to assist Massport and the community in developing a design for Phase I of the SWSA Buffer. Massport began the community planning process in January 2001. In June 2001, a neighborhood consensus was reached on the Phase I design. Massport is proceeding with final design of Phase I of the SWSA Buffer. Design of the project, which was 85 percent complete in September 2001, has been put on hold due to financial constraints. However, Massport remains committed to the project and anticipates that the project will be delayed by approximately one year.

- North Service Area Buffer. In January 1997, Massport selected a landscape architect/planning firm to lead the design process for the NSA Buffer. The team developed schematic designs with input from the neighbors. Due to neighborhood concerns over the possibility of increased public access near their homes, this project, at the request of the neighborhood, was put on temporary hold until further notice.

2.3.3.4 Tenant Improvements

Massport leases airport land and building space to a variety of public and private tenants who require proximity to Logan Airport. Government offices include the Immigration and Naturalization Service (INS), the Department of Agriculture, and the FAA. Private tenants include airlines, cargo companies, flight kitchens, and car rental agencies. These tenants have the right to occupy, use and improve their leased areas, subject to and in accordance with their lease terms and all relevant federal and state regulations. Tenant improvement activities involve a variety of projects including minor leasehold improvements such as non-structural alterations and minor cosmetic work, equipment installation, building additions and tenant relocations, as well as major capital investments by airlines to improve terminal facilities.

The majority of the tenant improvement projects are generally limited to renovation, repair, furnishing, or equipping existing building space. Tenant projects that are of a scope or character that meet any MEPA or NEPA threshold for environmental review proceed through the appropriate project-specific environmental review process.

Major tenant projects currently being evaluated, planned, or constructed in the service areas include the United Airlines Ground Service Equipment Building, replacement hangar facilities, and the United States Postal Service (USPS) facility. Below are brief descriptions of each.

United States Postal Service Facility

The USPS Logan Airport Mail Center in the South Cargo Area provides the USPS with direct airside access to air transportation carriers. However, this facility is inadequate to accommodate future USPS shipping needs and must be replaced with a new facility that can provide continued, secure airside access. Although the USPS does not own or operate a fleet of aircraft, it does lease aircraft to accommodate both airmail and express package shipments. In addition, all major United States carriers are under contract with the USPS to provide belly capacity to carry United States mail. The major carriers provide both aircraft capacity and line-haul transportation. The line-haul function is on the apron where the airlines "tug" mail to/from their aircraft to the airmail facility. The line-haul/tug operation therefore requires secure airside access. The North Cargo Area/North Service Area is one location under consideration for the USPS replacement facility.

2.3.3.5 Other Airfield/Airside Improvement Projects

Runway 33L End Improvements

Federal and state environmental review of the Runway 33L End Improvements Project was conducted in the 1980s as part of a project to enhance safety at four runway ends at Logan. The purpose of the Project was to more safely accommodate aircraft overruns or overshoots in an emergency situation. As originally conceived, the Runway 33L End Improvements Project would have involved construction of a smooth transition from the existing runway end to the Harbor bottom. As a result, there would have been wetlands impacts associated with the Project. No other long-term environmental impacts were anticipated. Because none of the alternatives associated with the Airside Project affect wetlands, there would be no cumulative wetlands impacts associated with the two projects considered together. In any event, the original concept for the Runway 33L End Improvements Project is being entirely reevaluated by Massport. At this time Massport has no preferred design or concept for the Runway 33L End Improvements Project, and has no specific or general time frame for implementing the Project. Therefore, there is no basis upon which to conduct a cumulative assessment of the potential impacts other than to note the potential for wetlands impacts that would be associated with the Project if and when it is proposed for implementation.

2.3.3.6 Other Projects

In addition to the Massport and tenant-related projects previously described, the following major projects will also occur on the Airport, and are considered in the evaluation of cumulative impacts.

CA/T Project

The CA/T Project will link the Massachusetts Turnpike (I-90) to Logan by way of a four-lane tunnel beneath Boston Harbor. The Ted Williams Tunnel is complete and was opened to traffic in December 1995. In addition to the tunnel, the following three CA/T Project components involve construction on or in the vicinity of the Airport:

- Contract C07D2, involving connections of the Ted Williams Tunnel to the main airport circulation roadway system that is now substantially complete;
- Contract C08A1, involving connections of the main airport circulation roadway system to Route 1A, and;
- Contract C07C1, involving construction of toll facilities.

Massport has worked closely with MassHighway and the Massachusetts Turnpike Authority (MTA) to coordinate airport activities during the implementation of the CA/T Project in order to ensure efficient and uninterrupted operations. Construction of the airport-related components of the CA/T Project is anticipated to be completed in 2004.

The Federal Highway Administration has completed its own NEPA environmental review and issued a Record of Decision (ROD). The CA/T NEPA documentation, including a series of updates and supplemental analyses, addressed the regional motor vehicles access implications of its roadways and the expected growth of air passengers at Logan. The Logan Airport traffic analysis in the Massport GEIR/ESPR documents, and the FAA's Environmental Assessments for the West Garage, the International Gateway, and the Terminal A Replacement Projects, all are consistent with and build upon the CA/T analysis. Like the CA/T NEPA record, these environmental review documents address the environmental impacts of expected growth in air passengers at Logan.

Massachusetts Bay Transportation Authority (MBTA) Blue Line Modernization Program

The MBTA Blue Line Modernization Program includes improved station safety, cleanliness, lighting, barrier-free access to all Blue Line stations and lengthening of station platforms to accommodate six-car trains.

The MBTA is developing a new Logan Station to be located about 400 feet north of the existing Airport Station. Massport is consulting with the MBTA on the Project's design and operational elements. Construction has begun on the new Airport Station, which will include modern passenger amenities such as wide escalators, oversized elevators, and real-time flight information displays in the station lobby. It will also provide a convenient at-grade connection to the neighborhood, AITC Blue Route and Logan, and may become a stop on the MBTA's proposed Circumferential Transit (Urban Ring) service.

2.3.4 Long-term Cumulative Effects

This section discusses the long-term cumulative effects of the proposed Airside Project's Preferred Alternative in the context of overall aircraft operations and the past, present, and reasonably foreseeable future projects that can be expected to cause impacts, overlapping in time or geographic area, that would cause cumulative environmental impacts to the same environmental resource, ecosystem, or human community.

2.3.4.1 Noise

Ambient noise levels at Logan are dominated by noise from aircraft operations. A review of the environmental documentation for the Logan Modernization and CA/T Projects was conducted to assess the potential for cumulative noise impacts. The FAA considers increases in day-night average sound level (DNL) in noise sensitive land use areas of 1.5 A-weighted decibels (dBA) or greater to be the threshold of significant noise impacts in areas above 65 dBA.

The noise analysis conducted for the International Gateway evaluated impacts that might result from a change in the spatial arrangements for aircraft/vehicle operations at Terminal E. This analysis found that there are no impacts due to aircraft in-flight noise. When compared to the No Build Alternative, the International Gateway would result in

differences in day-night average noise levels of less than 0.7 decibels (dB) at all of the community sites for the 2010 future analysis. [4]

The cumulative noise analysis conducted for the Terminal A Replacement Project also determined that there were no significant noise impacts associated with improvements at Terminal A, since the buildings (particularly the satellite concourse) provide screening and noise attenuation to the Jeffries Point community, the most closely located residential neighborhood.

The proposed Massport/American Airlines Terminal B, Pier A Improvements Project also will have no significant impact to cumulative noise levels in the Jeffries Point community. The design for the improved terminal will be approximately 60 feet wider and 15 feet taller than the existing terminal building, and the proposed Satellite FIS facility is a new building planned to be up to 75 feet high. The massing of both these buildings will provide screening and thus noise attenuation to the community.

Noise analysis conducted for the CA/T Project in the East Boston/Logan area found no impact based on the Federal Highway Administration (FHWA) noise criteria at 12 of the 13 receptor sites evaluated. A minor noise impact from the CA/T Project at the East Boston Memorial Stadium Park was identified in the CA/T Project Final Supplemental Environmental Impact Statement/Report (FSEIS/R).[5]

Given the fact that there are only minor impacts in discrete areas associated with any of the other concurrent projects at Logan, there are no material cumulative noise impacts created by the combined construction and operation of these projects with the proposed Airside Project improvements.

Aircraft operations are the determining factor in evaluating noise impacts associated with airport operations. By examining the effect of all aircraft operations, including in-flight as well as ground taxiing noise, the assessment of noise impacts conducted for the Airside Project is cumulative in its approach. Cumulative noise metrics used in the Airside Project Draft EIS/EIR analysis included DNL and Time Above (TA) specified threshold sound levels. DNL noise exposure contours are a graphical representation of how cumulative noise from Logan's aircraft operations is distributed over the surrounding area on an average day of a given year.

Implementation of the Preferred Alternative was shown to reduce delay and provide Air Traffic Control (ATC) with a greater ability to meet PRAS goals. The Preferred Alternative also reduces ground noise by reducing taxiing queues. The results of the noise impact assessment indicate that for all future fleets and scenarios, the Preferred Alternative provides a significant reduction in the most severely affected populations in East Boston, Winthrop and Revere that are within the 70 and 75 dB DNL noise contours.

4 A change in noise level of 3dB or more is considered perceptible to the human ear.

5 *Central Artery (I-93)/Third Harbor Tunnel (I-90) Project Final Supplemental Environmental Impact Statement/Report* (EOEA # 4325), prepared for the Massachusetts Department of Public Works, November 1990.

2.3.4.2 Air Quality

The air quality assessment conducted for the Airside Project addressed the cumulative impacts associated with all airport-related sources of air emissions at Logan, including aircraft, ground service vehicles, fuel facilities, and on-and off-airport motor vehicles. The same passenger levels developed in support of the *1994/1995 GEI*R, the *1996, 1997* and *1998 Annual Update*s, and the *1999 Environmental Status and Planning Repor*t, air quality analyses (29 million passengers and 37.5 million passengers) formed the basis for the Airside Project assessment. Similarly, on- and off-airport motor vehicle traffic data were the same for both studies. In this way, the air quality impacts associated with the Airside Project Alternatives were evaluated as part of the long-range development plan for Logan. This approach therefore assessed cumulative air quality and odor impacts associated with all landside and airside projects at Logan.

To completely assess cumulative air quality impacts, both emission inventories and dispersion modeling of existing and future year conditions were undertaken. The purpose of this assessment was twofold, (i) to compare the results to regulatory standards or criteria, and (ii) to compare the impacts from the Preferred Alternative to the No Action Alternative. The results of the emission inventories and dispersion modeling indicate that:

- There are no predicted violations of any federal and state standards or guidelines under any future scenarios or alternatives;
- Due to improved airfield operating efficiency and reduced delay, the overall air quality impacts associated with the Preferred Alternative are beneficial or will remain imperceptible, when compared to the No Action Alternative; and
- Air quality emissions associated with motor vehicles are the same for all Airside Project Alternatives, including the No Action Alternative.

A comparison of the air quality impacts from the Airside Project to other past, present, and reasonably foreseeable projects is presented in Table 2.3-2. Each of the individual projects (Airside Project, West Garage, International Gateway, Jet Fuel Storage and Distribution Facilities Central Artery, AITC, and Terminal A Replacement), result in air quality improvements or, in the case of the Replacement Hilton Hotel, minor, imperceptible changes in air quality. Therefore, there are no cumulative air quality impacts associated with these projects.

The Terminal B, Pier A/Satellite FIS Facility will result in greater operating efficiency and less congestion on both the airside and the landside, therefore emissions for the mobile sources are expected to decrease. In addition, gates will be fitted with provisions for electricity and pre-conditioned air, thereby reducing emissions from aircraft auxiliary power units.

The Airside Project has been shown to result in a net reduction in future year emissions when compared to the No Action Alternative condition and therefore conforms to the SIP. The results of the air quality impact analysis indicate that the total emissions caused by any of the Airside Project Alternatives are below all applicable emission levels (under

40 CFR s.93.153 (b)) that would trigger the requirement for a conformity determination. This benefit is largely attributable to improved airfield efficiency with the proposed improvements. Atmospheric dispersion modeling conducted in conjunction with this analysis also shows that the proposed Airside Project will not cause, nor contribute to, violations of the NAAQS for carbon monoxide (CO), ozone (O3) or any other EPA-criteria air pollutant. Because emissions are reduced, the Preferred Alternative produces air quality benefits when compared to the No Action Alternative. There are no air quality impacts associated with the Airside Project, and consequently the Project does not result in cumulative air quality impacts

Table 2.3-2
Cumulative Air Quality - Year 2010 (Emissions in kg/day)

	Comparison of Action minus No Action Alternatives Emissions		
	VOC	**NOx**	**CO**
Airside - 2010 45M High[1]	**-234**	**-201**	**-1,307**
Other Projects			
West Garage[2]	-11	-5	-61
International Gateway[3]	-22	-278	-82
Jet Fuel Storage[4]	-7.7	-10.4	0.0
Replacement Hilton Hotel[5]	N/A	N/A	N/A
Central Artery[6]	N/a	-91	-5,836
AITC[7]	-3	-6	-20
Terminal A Replacement[8]	-42	-201	-1,307
Terminal B, Pier A Improvements	N/A	N/A	N/A
Subtotal Other Projects	-86	-591	-7,306

1 Logan Airside Project Draft EIS/EIR scenario reflects the Preferred Alternative and includes all emission sources. The 45M High scenario was used to provide a consistent comparison to the International Gateway Project that used a 45M High scenario for the basis of the air quality analysis.

2 Final Environmental Impact Report, *West Garage Project*, Boston-Logan International Airport, January 31, 1996. (Includes Motor Vehicle Emissions only).

3 Final Environmental Impact Report and Environmental Assessment, *International Gateway*, Boston-Logan International Airport, October 15, 1996. (Based on 45 million passenger conditions and includes aircraft, auxiliary power units, and ground service vehicles.)

4 Final Environment Impact Report, *Jet Fuel Storage Facility*, Boston-Logan International Airport, April 16, 1996. (Includes Jet Fuel Storage Facility Emissions only.)

5 Environmental Notification Form, *Replacement Hilton Hotel*, Logan Airport, May 15, 1996. A waiver for the preparation of an Environmental Impact Report was granted by MEPA in July 1996. The Replacement Hilton Hotel will generate approximately 260 more trips per day than the existing hotel. The increase in emissions due to these new trips represents less than one percent of total airport traffic and is not considered an impact.

6 Final Environmental Impact Report, Central Artery (I-93)/Tunnel (I-90) Project, November 1990.

7 Environmental Assessment, Airport Intermodal Transit Connector Boston-Logan International Airport, January 1998.

8 Terminal A Replacement Project, Federal Environmental Assessment, May 31, 2000.

2.3.5 Short-Term Construction Impacts

Construction activities associated with the Preferred Alternative include unidirectional Runway 14/32 and the Centerfield Taxiway, as well as taxiway realignments and extensions associated with Taxiway Delta, Taxiway November and the reconfiguration of taxiways in the Southwest Corner. All construction phases and sequences will be carefully

planned to ensure the continued safe and efficient operation of the Airport, and the successful and timely completion of the Project.

Potential impacts resulting from the construction of the Preferred Alternative can be separated into two broad categories for discussion purposes: impacts on the direct users of the airfield, and impacts on the group consisting of the surrounding communities and other users of the Airport in general. It is Massport's goal to avoid or to mitigate such impacts to the maximum extent possible.

A summary of construction costs and duration of the Preferred Alternative, by individual construction elements, is presented in Table 2.3-3.

The general nature of the construction activity is similar to that of a highway construction or rehabilitation project: excavation; placement and compaction of fill; installation of electrical conduits, drainage pipes and appurtenances; placement of asphalt; and installation of airport lighting and navigation systems.

Table 2.3-3
Estimated Design/Construction Costs of the Preferred Alternative by Construction Element ($ millions)

Construction Element	Design/ Construction Services	Construction	Other [1]	Total Cost	Estimated Construction Period (Days[2])
Unidirectional Runway 14/32[3]	$6.9	$40.8	$12.5	$60.2	300
Centerfield Taxiway	$6.2	$27.0	$7.7	$40.9	See Note 4
Southwest Taxiway System Reconfiguration	$2.7	$14.6	$4.6	$21.9	240
Taxiway Delta Extension	$0.9	$5.8	$1.9	$8.6	180
November Taxiway Realignment	$1.1	$8.3	$2.4	$11.8	180
TOTAL	$17.8	$96.5	$29.1	$143.4	Phased over ± 5 years

1 Other includes miscellaneous and contingency cost estimates.
2 Days are consecutive calendar days, inclusive of Saturdays and Sundays. Does not include winter construction shut down period.
3 Additional costs related to mitigation include $10 million for the cargo buyout and $30 million for sound insulation.
4 Construction of the northern segment of the Centerfield Taxiway is estimated to take 180 days; construction of the southern segment of the Centerfield Taxiway is estimated to take 210 days. There is some overlap of the two construction periods.

2.3.5.1 Impacts on the Surrounding Communities

As described in Section 6.9 of the Supplemental DEIS/FEIR, a variety of measures of activity were developed in order to identify and mitigate the potential impacts of constructing the Preferred Alternative on surrounding communities. These activity estimates are based on anticipated construction methods and projected construction schedules. Truck trips, the types of heavy construction equipment on the site, and the noise effects of similar construction projects are estimated. These data constitute key inputs to the construction impact analyses. These analyses were updated since the

publication of the Supplemental DEIS/FEIR to include the Terminal B, Pier A Improvements/Satellite FIS Project. The short-term construction impacts associated with the Terminal B, Pier A Improvements/Satellite FIS Project do not change the short-term cumulative construction impacts associated with the Preferred Alternative.

Construction Traffic

Impacts to ground transportation at Logan Airport during construction of the proposed airport improvements are not expected to result from the presence of construction-related vehicles (trucks or other heavy equipment) on the airport's roadway system. There will be no need to institute temporary detours for the main airport roadway as a result of the construction process. The truck trips associated with the Terminal B, Pier A Improvements/ Satellite FIS Project were already included in the Supplemental DEIS/FEIR analysis.

Construction Air Quality

As reported in Section 6.9.4.2 of the Supplemental DEIS/FEIR, emissions associated with the Preferred Alternative are well below the levels of the General Conformity regulations. Construction emissions are thus presumed to conform to Section 176(c) of the CAA. In addition, Massport is committed to participating in the Massachusetts Clean Air Construction Initiative[6] that would further reduce emissions below the *de minimis* thresholds by use of catalysts and filters with construction equipment. The Terminal B Pier A/Satellite FIS Project also was found to have emissions below the levels of the General Conformity regulations.[7]

Therefore the construction air emissions when added to emissions of other past, present and reasonably foreseeable projects are not significant. There are no NAAQS violations.

Construction Noise

As described in Section 6.9 of the Supplemental DEIS/FEIR, the assessment of construction noise impacts was based on the following primary inputs: the quantity of heavy construction equipment anticipated to be used during construction; the number of truck trips to or from each construction area; the location of the proposed construction on the airfield; and, the amount of night time and day time construction.

The cumulative construction noise analysis considered the potential noise impact from the construction of the proposed Airside Project improvements and concurrent construction projects at Logan Airport on the noise-sensitive areas closest to the construction zone. Concurrent projects are expected to include the terminal area roadways, International Gateway, and CA/T contract, C08A1. This analysis built upon the cumulative construction noise analysis presented in the Final EIR/EA for the International Gateway (adjusted to reflect current construction schedules) and the Replacement Terminal A Draft EIR,[8] and incorporated the results of the construction noise analysis developed for the

6 The goal of the Clean Air Construction Initiative (CACI) is to reduce the emissions associated with construction equipment.
7 *American Airlines Terminal B, Pier A Improvement /Massport Satellite FIS Draft Environmental Impact Report*, EOEA# 12235, April 2001.
8 *Replacement Terminal A Draft EIR*, Delta Airlines, October 15, 2000.

Airside Project as presented in Section 6.9 of the Supplemental DEIS/FEIR. Since the Supplemental DEIS/FEIR was filed, the Terminal B, Pier A/Satellite FIS Project Draft and Final EIS was filed with the EOEA. The construction noise analysis for the Terminal B, Pier A Project was used to update the Airside Project analysis. Results of this update show that even with the inclusion of the above-mentioned Project, the Airside Project, in addition to the other Massport and private development projects, will have no cumulative noise impacts, using the Federal Highway Administration criteria. (See Appendix I for additional information on the construction noise analysis).